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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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Working Capital as an Element of Fair Value in Rate-Making

By WILLIAM A. DITTMER*

IT IS generally agreed (and has been for many years) that the fair value upon which a utility is entitled to earn a fair return should include an allowance for working capital, comprising materials and supplies for operation and so-called cash working capital, in addition to the "value" of the permanent or fixed assets ("utility plant" is the designation used in the new systems of accounts).

The term "working capital" is one commonly used in accounting and financial circles; its ordinary meaning, as used, for instance, in the reports of such financial agencies as Standard Statistics, Moody's, etc., is equivalent to net current assets. The amount is arrived at simply by deducting total current liabilities from total current assets. From the financial and accounting point of view this is an important measure of the liquidity of the enterprise, and of its probable ability to survive a period of adverse business. For purposes of financial analysis of utility companies, the term is properly used in the same way and in the same meaning.

However, as used in rate-making procedure, the term working capital has a somewhat specialized and more restricted meaning. Here the question involved is that of a fair return upon the fair value of the property used and useful in rendering utility service. One of the items of property so used and useful is working capital, consisting of materials and supplies and the cash requirements of the business for rendering utility service. Unfortunately, courts and commissions have not been very careful in their use of the term; sometimes it means only cash, sometimes it includes materials and supplies. The better usage is to conform as nearly as possible to the common meaning of the term and let it include materials and supplies, referring to the cash part thereof as "cash working capital" or "working cash capital."[1]

* Public Utility Consultant, Illinois Commerce Commission.

[1] Two lists of cases are given by K. Stecher in "The Determination of Working Capital in Railroad and Public Utilities Valuations," 39 *Yale Law Journal* 940 (1930), in one of which the court used the term to include materials and supplies and in the other to exclude materials and supplies. Recently, the United States Supreme Court in *Los Angeles Gas & Elec. Co. v. Calif. R.R. Com.*, 289 U.S. 287, 317 (decided in 1933) referred

(*Footnote 1 continued on page 254*)

A Neglected Subject

Because of lack of uniformity in the meaning of the term, it is difficult, without a careful analysis of the individual cases, to make any comparisons of the working capital allowances in different cases. Since the amount of working capital must be fixed in every determination of a rate-base, a large number of cases is cited in *P.U.R. Digest*,[2] but only a few of them are of much use in analyzing the subject.

Probably because valuation of the fixed assets has overshadowed in importance the working capital allowance, this subject has been accorded but little attention by courts of last resort and by textbook writers. In the Supreme Court volume of Commerce Clearing House only two cases are cited, viz., the Des Moines Gas case[3] and the Indianapolis Water case,[4] neither of which has much bearing on the question. In the former the lower court had affirmed with much reluctance the master's allowance of $140,000 for working capital, and the United States Supreme Court quoted the master's language and then affirmed generally (with a technical modification) the decision of the lower court without any specific mention of working capital. The allowance was unusually high because the new gas ordinance under attack by the company had eliminated from the rate a delayed payment penalty of 10 cents per MCF previously in effect. In the Indianapolis Water case the Court merely stated (at page 412) that "the amount of working capital is low when compared with those included in other cases."

Most of the textbook writers have passed over the subject with very little attention. Whitten[5] went into the matter in some detail and, of the more recent writers, Bauer and Gold[6] devote a short chapter to the subject, but the discussion is rather general and inconclusive. No reference is made to court decisions. K. Stecher, in the article cited above, gives an excellent review of the historical development of the subject, with particular reference to the Interstate Commerce Commission. Welch[7] quotes only from the master's report in the West Palm Beach Water Co. case,[8] in which the company asked for a high allowance because of poor collections. This is followed by a note citing a number of commission cases and references to a number of textbooks and magazine articles. The case book by Barnes contains no separate section on working capital, but has a number of references in the index.[9]

While the propriety of an allowance for working capital in the rate-base has

(*Footnote 1 continued from page 253*)

to "materials and supplies *and* working capital." The federal district court followed the better usage in referring to "working *cash* capital" (58 Fed. (2d) 256, 262 (1932).)

[2] The citations cover 49 pages in Vol. 6 ("Valuation," §§287–319; pp. 5702–51) plus 14 pages in the 1937 *Supplement*.

[3] *Des Moines Gas Co. v. Des Moines*, 238 U.S. 153 (1915).

[4] *Indianapolis Water Co. v. McCardle*, 272 U.S. 400 (1926).

[5] *Valuation of Public Service Corporations* (New York: Banks Law Publishing Co., 1915). The original edition is cited as representative of the earlier period. The later edition (revised and enlarged by Wilcox in 1928) likewise contains an excellent chapter on working capital and brings the authorities down to 1928.

[6] *Public Utility Valuation for Purposes of Rate Control* (New York: Macmillan Co., 1934).

[7] *Cases on Public Utility Regulation* (Washington: Public Utility Reports, Inc., 1936), 2nd ed.

[8] *West Palm Beach Water Co. v. City of West Palm Beach*, — Fed. (2d) —.

[9] Barnes, Irston R., *Cases on Public Utility Regulation* (New York: F.S. Crofts & Co., 1938). Most of the cases referred to in the index are purely incidental, except for some detail as to working capital on pp. 544–5, citing *Re Black River Tel. Co.* (N.Y.), P.U.R. 1931 C 26–52 and the decision of the Illinois Commerce Commission in the Public Service Company of Northern Illinois case which is quoted at some length on p. 558 ff. This latter case is referred to below in footnote 23.

long been recognized, the fact that the authority for such an allowance goes back to the case of *Smyth* v. *Ames*,[10] in which the "fair value" doctrine was originally enunciated by the United States Supreme Court, seems to have been quite generally overlooked. One of the elements of value there enumerated (at page 547) is "the sum required to meet operating expenses." This seems rather obviously to refer to the necessary amount of cash working capital required by the utility, in addition to other property, to meet operating expenses as they fall due.[11] Since the present concept of working capital, as representing current assets in contrast with fixed assets, had not at that time fully developed, the Supreme Court apparently in the above citation referred only to the cash requirement. In the course of time it has become customary to consider fixed property as one element in the rate-base and working capital, including the physical property in materials and supplies, and cash as a second element. None of the earlier writers nor any of the early cases refer to *Smyth* v. *Ames* as authority for the allowance for working capital. In all cases it is treated as more or less self-evident. Whitten, in his book, referred to above, goes into the question of working capital at some length. He refers to the methods of estimating working capital for tax purposes in Great Britain and takes up individually a number of important rate cases during the 10 years preceding 1915.

The earliest one of these, in which the question of working capital was discussed in some detail, is the New York Eighty Cent Gas case, decided in the federal district court in 1907[12] and affirmed a year later by the United States Supreme Court.[13] In this case District Judge Hough gave what seems to be an entirely adequate statement of the requirements of cash working capital by a utility, saying (at page 859):

"That phrase means the amount of cash necessary for the safe and convenient transaction of a business, having regard to the owner's ordinary outstandings, both payable and receivable; the ordinary condition of his stock of supplies in hand; the natural risk of his business, and the condition of his credit; . . ."

Materials and Supplies

With reference to the allowance to be made for materials and supplies, there has been relatively little controversy. By more or less general agreement it has been customary to adopt the book figure without deducting for accrued depreciation and without considering reproduction cost. Materials and supplies, at least in theory, turn over rapidly, and the materials in stock will usually be fairly new, so that the prices reflected on the books will, in most cases, be relatively current. It has, therefore, been customary to adopt the book figure, usually averaged over a period to eliminate any temporary abnormality, without reference to reproduction cost and without any deduction for accrued depreciation.[14] While it is true that in many cases the materials and supplies carried on the books by utility companies do include a good deal of dead wood and obsolete parts and materials, the amount involved has usually not been sufficient to warrant the rather meticulous and extended examination that would be required in order to arrive at an accurate appraisal. Consequently, materials and supplies are usually considered to be non-depreciable property

[10] 169 U.S. 466 (1897).
[11] This is pointed out by Stecher, *loc. cit.*, p. 597.
[12] *Consol. Gas. Co. v. City of New York*, 147 Fed. 849.
[13] *Willcox v. Consol. Gas Co.*, 212 U.S. 19 (1909).
[14] Some of the Bell Companies depreciate the materials and supplies account on the same basis as the fixed assets.

and the utility is not permitted to accrue any annual depreciation against this account.

Furthermore, no elimination is made in most cases for materials and supplies for construction, as distinguished from requirements for maintenance and other operation. If the amount is of sufficient importance, it may receive special consideration, otherwise inclusion of construction materials in materials and supplies may simply be offset by disallowing any interest during construction on minor additions, which would normally be made by using materials carried in the materials and supplies account. Most of the larger items of equipment will be delivered direct to the job.

Cash Working Capital

In determining the allowance for cash working capital the question of valuation as such is not involved at all, since the amount is necessarily stated in the unit used to express value. In principle, probably most utilities and regulatory authorities are in agreement that, so far as cash working capital is concerned, a public utility is entitled to earn a fair return on the amount required for the rendering of utility service. The difficulty is in the application of the principle.

Here two main differences appear. In the first place, some utilities insist that the retail price of the service as represented by the accounts receivable (and sometimes as unbilled service) should be the basis of the determination, whereas the regulatory authorities, on the other hand, point out that the investment of the utility is limited to the expense of rendering the service, and that the retail price includes profit. In the second place, a few utilities contend that the allowance should be based on the current assets without any offset on account of corresponding current liabilities.[15] The regulatory authorities, on the other hand, take the position that the utility obviously has no cash invested, and therefore no investment, until it actually pays out the money. The position of the utilities seems to be technical and legalistic rather than practical and realistic.

Whatever may be the arguments, pro and con, the United States Supreme Court seems to have decided in favor of the position of the regulatory authorities. Both points were involved in the Los Angeles Gas & Electric case, and were passed upon by the United States District Court and the United States Supreme Court in the following language:

"For working cash capital, an amount of $2,333,850 was claimed; $645,000 was allowed. This item was to cover delayed income receipts, occasioned by the wait between time of delivery of gas to the customer and collection of the charges. In brief, the Company claimed a sum representing total earned amounts at retail prices. The Commission found that cost of service should be considered, rather than retail charges, which latter would include profit. It considered, in computing the amount, the fact that the Company in its purchase of natural gas, was extended thirty days' credit. An offset was accordingly charged against the expense total in arriving at the result. We think the method used was a proper one." (58 F. (2d) 256, 262 (1932).)

"The record affords no adequate basis for criticising the allowance made by the Commission for materials and supplies and working capital." (289 U.S. 287, 317.)

Although this is the most specific ruling that the writer has been able to find by the United States Supreme Court on

[15] Of course, this refers only to current liabilities incurred in connection with operating expenses, such as accounts payable, wages accrued, etc. Short-term borrowings or other current liabilities of a similar kind would not enter into the problem.

the subject of working capital, the case is not cited on this point in the *P.U.R. Digest*, in Commerce Clearing House, nor in any of the other digests to which the writer has had access. This decision would seem to settle the above two major points of controversy with reference to the determination of working capital. Stated differently it means, in effect, that the United States Supreme Court has sanctioned the computation of working capital as a determination of the amount of money actually invested by the utility in rendering service to its consumers. The decision of the Supreme Court is particularly significant in this case because of the clear statement of the contentions of the Commission and the company, and because of the wide difference between the amount claimed by the company and the amount allowed by the Commission. The company claimed $2,333,850, whereas the allowance by the Commission, confirmed by the Supreme Court, was only about a quarter of this, viz., $645,000. There can be little doubt that the finding is in line with other decisions of the Supreme Court as to used and useful property and theoretical and hypothetical elements of claimed value.

Computation of Working Capital

While the general basis upon which cash working capital should be determined has been stated with some definiteness by courts and commissions over a long period of time, the exact method by which the amount should be computed in particular cases has been the subject of a good deal of experiment and variation. Perhaps the most detailed work and the most elaborate method of computing working capital was that developed by the Interstate Commerce Commission in connection with valuation of the railroads.

This method, which consists essentially of determining accurately for all the various items of expenditure the average weighted period of time during which the railroad had money invested in operating expenses, was adopted by the Interstate Commerce Commission in its decision finding the value of the North Hampton & Bath Railroad Company, entered on December 14, 1928.[16] In this decision is given a full description of the exact method as developed by the staff of the Interstate Commerce Commission.[17] It was based on voluminous detail obtained by means of a questionnaire from the records of the particular carrier and a great deal of time and labor was expended in the compilation. It was later found that this elaborate detail was not really necessary, because substantially the same result could be obtained by an analysis of the balance sheet and income account of the carrier for the year's operation. Therefore, in later valuations the Interstate Commerce Commission used this shorter method, beginning with valuation of the Muskegon Railway and Navigation Company decided July 22, 1933.[18] The shorter method has also been used in bringing up to date from time to time the valuations previously made of railroads, pipe lines, and other common carriers.

Generally speaking, the determination of working capital by state commissions for rate-making purposes has been, until recent years, rather a haphazard matter. It was said to be a matter of "judgment,"[19] or a "managerial problem limited within reason and neces-

[16] 149 ICC 244, 263.

[17] Also described in considerable detail by Stecher, *op. cit.*, at 938.

[18] 45 Val. Rep. 797.

[19] *Re New Eng. Tel. & Tel. Co.* (Me.), P.U.R. 1926 B 247.

sity,"[20] or "a matter of judgment depending on facts and circumstances before the Commission."[21] Sometimes the allowance has been based on percentage of fixed capital.[22] Most frequently the allowance has been stated either as a certain percentage of annual operating expenses (usually excluding either depreciation or taxes, or both) or, what amounts to the same thing, as a specified number of days' operating expenses. But the percentage, or the number of days, was frequently selected without any particular or detailed investigation of the facts as to the particular company. The usual range was from one month's operating expenses to about 60 days, for electric companies.

Gradually the state bodies have come to recognize that working capital is a matter which can be determined from the books and records of the company under investigation with a good deal of accuracy, and in recent years such determinations have been made in the more important cases in which relatively large amounts of money are involved.

The question of working capital has come before the Illinois Commerce Commission in recent years in three important rate cases in which the matter was dealt with in considerable detail. These cases involved the rates of Public Service Company of Northern Illinois,[23] Commonwealth Edison Company,[24] and Peoples Gas Light & Coke Company.[25] The first two cases were citations by the Commission ordering the companies to show cause why electric rates should not be reduced; the third was an application by the company for an increase in gas rates.

The amounts in question were substantial. Public Service Company claimed working capital of $5,206,000. The computation of the actual requirement was $2,963,882, and the Commission in its order allowed $3,500,000.[26] Commonwealth Edison Company claimed $11,500,000; the computation in the Commission's brief, made on the same basis as in the Public Service Company order, gave a figure of approximately $7,000,000. The Commission made no specific finding for this item in its order. The Peoples Gas Light & Coke Company claimed $11,411,354; the computation of the amount actually required was $6,830,459, and the Commission allowed $7,500,000.[27]

In the Peoples Gas case the company's claim for working capital was as follows:

Operating Expenses	$ 3,590,895
Prepayments	626,371
Accounts Receivable (Merchandising)	2,318,207
Materials and Supplies	1,754,104
Cash	3,121,777
Total	$11,411,354

The first item of $3,590,895 represents the claimed investment in operating expenses, and was arrived at by computing the average number of days

"which normally elapse between the time when the company begins incurring expenses in connection with the delivery of gas to its customers and the time when it receives payment from its customers for the gas used by them."[28]

[20] *Re Monroe* (Mich.), P.U.R. 1924 C 808.
[21] *Cunningham v. Chippewa Falls Water Works & Ltg. Co.*, 5 Wis. R.C.R. 302 (1910).
[22] *Re Cape May Ill. Co.* (N.J.), P.U.R. 1921 B 695.
[23] 4 P.U.R. (N.S.) 1 (1934).
[24] 15 P.U.R. (N.S.) 404 (1936).
[25] 19 P.U.R. (N.S.) 177 (1937).
[26] *Loc. cit.*, p. 42.
[27] *Loc. cit.*, p. 243.

[28] A practical result can usually be arrived at without much detailed analysis by breaking up the operating expenses into only a few major classifications, e.g., payroll of employees paid on an hourly basis, monthly payroll, purchased power (or gas), accounts receivable for routine supplies purchased, rents, etc. The average interval between the rendering of service and the payment should be determined for each classification of expense and the several items combined by the familiar dollar-year (or dollar-day) method.

(*Footnote 28 continued on page 259*)

As pointed out by the Commission in its order, this amount is subject to two major adjustments.[29] In the first place, since the company operates on a schedule of continuous meter reading and continuous billing throughout the month, the computation should run from the average time of rendering the service to the customer and not from the time when the company begins to incur expenses. Since the company normally bills once a month, that makes a difference of 15 days and has the effect of reducing the computed investment in operating expenses by approximately $1,000,000.[30] The second adjustment must be made because the company does not pay the expenses incurred in rendering the service at the same time the service is rendered. The largest single item of expense is for the purchase of natural gas for which the company pays on the 20th of the following month. Giving effect to this item results in a further reduction of substantially $1,000,000 in the investment in operating expenses. On other expenses, such as payroll, purchases of coal, etc., a delay was also shown between the time of rendering the service to the customer and the time when the company was required to make payment. Taking these other expenses into account reduces the amount by a further $500,000, so that of the original $3,500,000 claimed only about $1,000,000 is left, exclusive of taxes.

Taxes

The item of taxes was of particular importance in the three cases under discussion. Where working capital is based on a specified number of days' operating expense, it is customary to leave out general taxes, because payment does not have to be made until after the company has collected the revenue for the service rendered. There is little logic in that treatment, and this was especially so in the case of the Chicago utilities because they were claiming, as a part of working capital, large amounts of money for necessary bank balances. The question of substantial bank balances as a part of working capital is a new development, brought about by the current excess of funds which the banks have on hand and the very low rates of interest. Banks pay little or no interest on balances in checking accounts but, on the contrary, require minimum balances to be kept on hand, failing which a fee is charged for each check or other transaction handled by the bank. There is justification, therefore, in the claim that a utility should be allowed a reasonable amount of working capital in the form of necessary bank balances. However, it is thought to be

(*Footnote 28 continued from page 258*)

The Interstate Commerce Commission method does give weight to the fact that services are billed in arrears and expenses are likewise paid in arrears. The Interstate Commerce Commission method makes the computation from the time of beginning accruals for expense, but it also computes the time when revenues are received from the same point. Therefore, the net result is to determine the interval between the average time when the expenses have to be paid and the average time when the revenue is collected. This gives a perfectly accurate result, although the reference point (beginning of rendering service and incurring expense) is not strictly logical.

[29] Note that the company's claim in this case is based on the cost of the service to the company, not on the retail price of the service. The company apparently recognized as valid one of the points decided by the Supreme Court in the Los Angeles case, but failed to recognize the other, as will be seen from the text which follows.

[30] Of course, if payment and reimbursement are both related back to the beginning of rendering the service, the same result will be obtained. It is more accurate, however, to relate both to the average time of rendering the service. It is also advisable from a practical point of view, because there is no way of telling what a reviewing court may do on the question of working capital and, if the court should rule that it is improper to consider the delay in payment of expenses by the company as an offset against the delay in reimbursement, such a ruling would not then automatically give the company the the benefit of the 15 days between beginning of service and average time of rendering service. In the Peoples Gas Light & Coke Co. case this item amounted to $1,000,000.

equally reasonable that this requirement may be taken care of in full or in part by the funds which a company may be holding for future payment of taxes. Essentially, taxes are just another item of operating expense and, instead of being eliminated (as is customary) from the computation of the average delay in the payment of operating expenses, they should logically be weighted into the average. In that event many utilities would on the average be reimbursed before being required to pay the expenses, thus having no investment at all in operating expenses, but rather a credit which would supply a part of necessary bank balances. In practical application, it makes no difference whether taxes are weighted into the average or computed separately as an offset against claimed bank balances.

Federal income taxes are normally paid in four installments during the year following the one to which they apply. In Chicago a similar delay of a year or more occurs between the time when general taxes are accrued on the books of a utility and the time when the taxes must be paid. Since the money for the payment of such taxes is collected from the ratepayers within a relatively short time after accrual on the books, the companies have on hand large amounts of money pending the due date of the taxes. The companies contended that these moneys were held by them in the nature of a trust fund and could not, therefore, enter in any way into the computation of working capital. The logic of the contention is not clear. A separate computation in the case of the Peoples Gas Company showed that on the average the company had on hand approximately $2,000,000 in cash collected from the ratepayers and held for the future payment of taxes. This was sufficient not merely to offset the investment of $1,000,000 in other operating expenses, but to furnish a fund of $1,000,000 in cash for required bank balances.[31]

Merchandising Requirements

Another question which comes up in determining the allowance for working capital is whether or not provision should be made for the requirements of the merchandising activities of a utility company. The answer to the question depends not on any theory of working capital as such, but upon the treatment of merchandising generally. Those jurisdictions which consider merchandising to be a legitimate part of the utility business allow sufficient working capital (including the stock of merchandise in hand) for this purpose in the rate-base, and those jurisdictions holding the opposite view make no allowance. Since much of the merchandise is sold on instalments, a relatively large amount of working capital is tied up.[32]

Conclusion

Working capital is an element to be considered in fixing the rate-base. It normally includes materials and supplies

[31] The company secured in the state circuit court an injunction against the enforcement of the Commission's order, but the order granting the injunction was reversed by the Illinois Supreme Court. However, a rehearing has been granted and is now pending (August, 1939). The master in his report to the circuit court, which sustained the company's position practically throughout and which was adopted by the court, stated: "In principle this requirement that the utility should devote its tax reserve to working capital seems unwarranted." This conclusion, stated baldly without giving any reasons or citing any authority, would mean that the money collected by a utility out of rates and held for the future payment of taxes would have to be ignored and a separate allowance made in the rate-base, upon which the ratepayers would be required to furnish a fair return. There may be some obscure legal reason why this should be so, but it does not conform to common sense.

[32] The allowance made by the Commission in the Peoples Gas case included $2,318,207 for merchandising accounts receivable. (See p. 258 *supra*.)

and cash working capital. For materials and supplies the book amount may, in the absence of special circumstances, be accepted. The amount of cash working capital should be based on an actual analysis of the company's operations and will include as a principal item the company's actual investment in operating expenses for the interval between payment and reimbursement. Prepayments represent operating expenses paid in advance and may be weighted into the average or allowed for separately. Working capital (including both materials and supplies and cash) for merchandising will be allowed where merchandising is held to be a part of the utility business. Taxes should either be weighted into the computation of the delay in payment of operating expenses or may be considered separately as an offset against necessary bank balances. An allowance for bank balances may be made to the extent shown to be necessary for rendering utility services.[33]

[33] These principles will apply to all types of utilities and the resulting allowance will reflect the requirements of the particular utility. Where a utility receives payment for service very promptly, as for example in the case of street railway companies, or where part of the services are billed in advance as in the case of telephone companies, little or no cash working capital may be required. On the other hand, water companies having quarterly billing in arrears will require a relatively large amount of working capital for the volume of business done.

Policies and Practices of the Savings and Loan Bank of the State of New York

By RAY B. WESTERFIELD*

AMONG the too little known financial institutions of New York is the Savings and Loan Bank of the State of New York, located at 40 Wall Street. This Bank was established in 1916, under the title "Land Bank of the State of New York," designed to serve the building and loan associations of the State. In 1932 the name was changed to its present form, which more exactly expresses the Bank's character and relationships.

Experience with this Bank played a prominent role in inspiring and guiding the founders of the Federal Home Loan Bank System in 1932. Indeed, the promoters of the two institutions were in no small measure identic, and, but for the fact that certain unfortunate jealousies arose, it is probable that the Land Bank of the State of New York would have been converted into and become the Federal Home Loan Bank of New York rather than have allowed the establishment of a new institution which would compete with it and probably outshine it in size and influence. The fact is that in the competitive race the State Bank has fallen ingloriously behind the Federal, the State Bank contracting in size and the Federal expanding until, on December 31, 1938, its assets totaled $27,117,116 in contrast to assets of $4,394,332 for the State Bank.

Although the promoters of the two banking systems talked in rather grandiose terms about the importance of these central institutions in the home-mortgage financing world and compared them favorably with the Federal Reserve Banks in the commercial short-term credit field, and although the present administrators of the two systems continue to bolster their institutions and positions by like comparisons and glorification, actually such talk is not warranted, for neither Bank functions in a big way nor in a manner befitting a central bank.

The State Bank can on scarcely any score claim to be a central bank. Although it is owned by member savings and loan associations, makes both long-term and short-term loans to them, acts as depository for some members and performs certain minor miscellaneous services for its members, yet it functions in a relatively small way. It exercises no control—makes no pretense at control—over the members or over the long-term credit market, and does not have any of the devices peculiar to a central bank for influencing the conduct of its members. Beyond the exercise of discretion in making loans to members on the basis of their compliance with certain standards, no direction is given to their policies or operations. Even in this lending activity the influence is slight on account of the paucity of borrowers, the smallness of the borrowings, and the method of making long-term loans.

Recent Trends

The number of members has been very constant since 1932, but the percentage that borrowed has declined from 80% to 63%, as a result in large part of the great plenitude of local capital. Of the 216 state-chartered savings and loan associations in New York State on

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December 31, 1938, only 139 were members. In addition, 39 associations which since 1932 had converted from state to federal charter were still members because some of their long-term loans issued while they were state-chartered were still outstanding. On this date the total assets of state-chartered associations in New York State were $260 millions; of the 139 member state-chartered associations, $223 millions; and of the federal-chartered associations, $102 millions.

Of the 178 members, 113 (or 63%) were borrowers; and only 9 (or 5%) were short-term borrowers. During 1938 the total loans made to members amounted to $1,291,475, of which $325,000 were long-term; the average amount of short-term loans outstanding was $128,165. Table I gives the number of member associations as of December 31 for the years 1930 to 1938 inclusive, together with the number of such members as were long-term and short-term borrowers and the ratio of such borrowers to the total membership.

TABLE I. NUMBER OF BORROWERS FROM THE SAVINGS AND LOAN BANK OF THE STATE OF NEW YORK

Year (As of December 31)	Total Members	Total Long-Term Borrowers	Total Short-Term Borrowers	Total Long- and Short-Term Borrowers	Per Cent of Borrowers to Total Membership
1930	144	115	—	115	79
1931	158	124	—	124	78
1932	180	144	—	144	80
1933	181	143	24	145	80
1934	183	139	16	141	77
1935	179	133	10	134	74
1936	179	126	7	127	70
1937	177	120	12	121	68
1938	178	112	9	113	63

The capital, surplus, and undivided profits of the Savings and Loan Bank were less than a million dollars at the end of 1938; the sum of its cash and securities was $588,170; its long-term loans, $3,089,775; and its short-term loans, $59,275. Obviously, an institution operating in so small a way is not able to exercise a potent influence in the home-loan business of the great Empire State.

The contraction in size of the Bank since 1932 is noteworthy. The total assets, as of the end of the calendar year, were as follows:

1932	$19,857,000	1936	$7,125,000
1933	18,047,000	1937	5,623,000
1934	13,922,000	1938	4,394,000
1935	10,559,000		

In 1938, the resources of the Bank were less than ¼ of their 1932 volume. The management of the Bank believes that the corner has been turned in this trend, but this is doubtful.

A variety of factors may be cited for this decline. One is the maturities of the heavy bond issues of the late 1920's; for instance, the issues of 1926 amounted to $12.6 millions; of 1927, $4.7 millions; and of 1928, $5.1 millions. When these 10-year bonds matured in recent years, they were paid off. Other factors of decline are the repayment of loans and decline in borrowing caused by the greater inflow of local savings; the contraction of assets of member institutions resulting from the collapse of real estate values during the depression; the conversion of state associations to federal charter and the shifting of loans thither; and the low demand for home loans during the depression.

Lending Policies

The State Bank, like the federal system, is not serving the home-loan business in a big way as a source of credit, and the reasons are identical: namely, that the Bank is not disposed to take risks, is not equipped to take risks; it does not have the means and facilities

for operating except as an emergency institution; and it cannot or will not loan to members at rates low enough to induce them to borrow heavily and all the time. Its net capital funds are too small to assure it a livelihood without loading its loan rates above the market.

The Bank does not extend lines of credit to its members; every loan is specifically acted upon when it is applied for. This line of service to members is not offered, because the management has believed it not a practical policy, for members would tend to exhaust their line and have nothing left for emergencies.

The Bank has wanted the members to do the bulk of their borrowing from it. It does not want the members to come under the influence of the commercial banks; indeed, it has felt that that influence was already too strong, in some cases. Some of the associations have intimate long-standing tie-ins with certain banks, to which perhaps they even pay higher interest than the State Bank charges. Nevertheless, it uses no strong-arm methods in persuading members to look to it rather than to the banks as the source of funds. There is no discrimination against a member that borrows outside, nor a refusal to lend to it. Although the Bank may discourage outside borrowing, it does not penalize such practice. That would be unwise policy on account of adverse publicity and loss of good will. It wants the members to feel that they can do as well as or better at the Bank than elsewhere, arguing that it can afford a good loan service, for it can lend both long-term and short-term, and it knows the needs of the savings and loan business better.

The legal restrictions on savings and loan associations in New York which have obtained during this period are as follows:

1. When an association has pledged 50% or more of its net mortgages to the Savings and Loan Bank as collateral for advances, then the power to borrow money from any other sources ceases.

2. If less than 50%, but 25% or more, of its net mortgages is pledged as collateral, then the association may not borrow in excess of 10% of the total accumulated capital, including prior mortgages.

3. When less than 25% of its net mortgages is pledged for Savings and Loan Bank advances, then the association's power to borrow is not further limited than to 20% of the total accumulated capital and prior mortgages.

These are severe restrictions and approximate those of the federal system as regards possible volume of loans. They were somewhat amended and simplified by the last legislature. The new arrangements took effect on June 30, 1939. Instead of the highly involved and detailed section of the statute that stipulated the limitations on the members' right to borrow, of which the above three-clause statement is a condensation and which occupied 45 lines of print, the amendment is extraordinarily simple and requires only six lines (in the statute), as follows:

"A savings and loan association may borrow money if it has been authorized so to do by the vote of a majority of its board of directors. But no such association shall borrow an amount exceeding ten per centum of its capital or for a longer term than one year, except from a federal home loan bank or from the Savings and Loan Bank of the State of New York. The aggregate of all money borrowed by any such association shall not exceed, except with the approval of the superintendent, thirty-five per centum of its capital."

Such a liberal statute must be a great relief to the management both of the member associations and of the Savings and Loan Bank, and may become the

basis of a greater loan service by the Bank to its members.

Not until 1933 did the Bank make short-term loans. This was a reform period in the history of the Bank; a great effort was exerted to make the Bank more useful to members and more like a central bank. Almost all the short-term loans are made without collateral; only if the loan is abnormal in any way is collateral asked. Such loans run from 30 to 90 days, mostly 30 days, with no agreement in advance to renew. At maturity, the borrower is expected to repay part if he wants an extension, although the loan is not made on the basis of required amortization. The Bank is insistent that a short-term loan be really for short-term purposes and, if it runs longer than a year, it must be collateralized and amortized. Generally the volume of short-term loans is highest in winter and lowest in mid-summer (Table II).

The bulk of the loans of the Bank are long-term, that is, for a term up to 10 years. A member obtaining a long-term loan must own shares of the capital of the Bank equal to 5% of such long-term borrowings and must sign a contract agreement providing for amortization payments on the loan sufficient to provide for liquidation of the loan in equal annual amounts over the life thereof. The member deposits mortgages as collateral for the loan, which mortgages must have a value, after allowing for amortization of principal, equal at all times to at least 125% of the long-term borrowings from the Bank which they secure. The practice of the Bank has been, at various times, to require a ratio of mortgage collateral ranging from 140% to 200%—at present 150% is required. Substitutions in the mortgage collateral pledged are permitted from time to time as may be necessary. The member pays the contract rate of interest to the Bank plus the required amortization on its loan, and continues to receive all payments required from the mortgagors on the collateral pledged.

Bank Financing

The Bank assigns the collateral to the Comptroller of the State of New York as trustee and on this basis issues to the member bonds of a par value equal to the loan. The bonds are, in the constituting statute and therefore by the Bank, erroneously called "debentures"; actually they are in the nature of collateral trust bonds. These bonds are sold to members or outside purchasers. Preference is given to members, and for this purpose the Bank carries a list of those desiring bonds when issued. The

TABLE II. SHORT TERM-LOANS OUTSTANDING EACH MONTH DURING YEARS 1933–1938, INCLUSIVE

Months	1933	1934	1935	1936	1937	1938
January	—	$1,075,400	$162,200	$ 69,350	$ 84,900	$162,400
February	$ 25,000	1,054,200	111,200	69,150	88,900	182,100
March	25,000	606,000	85,500	76,650	78,400	126,800
April	25,000	259,500	73,000	71,650	92,900	192,225
May	20,000	168,825	70,100	78,150	96,000	163,500
June	23,000	199,850	69,100	59,650	65,900	173,800
July	23,000	169,950	92,000	103,150	57,200	159,550
August	18,000	132,950	53,550	52,150	76,000	157,850
September	19,200	122,950	71,800	48,150	69,400	58,950
October	20,200	112,025	66,800	42,300	75,000	52,675
November	20,200	239,325	53,750	53,100	140,400	48,900
December	967,322	224,325	66,850	52,600	108,700	59,275

bonds have a good market, with a large number of buyers ready to take those not taken by members.

The bonds are amortized by the Bank in equal annual amounts from the proceeds of the long-term loan payments by the borrowing member. Where the member makes monthly amortization payments to the Bank, such payments are held by the Bank in a separate account and are in the nature of a sinking fund for the purpose of accumulating over the year a sum sufficient to meet the annual installment due on the loan. The bonds issued by the Bank are either in sinking-fund or serial form, both types having been issued by the Bank from time to time. The security for the bonds consists primarily of the general obligations of the borrowing member associations, the first mortgages assigned to the Bank and deposited with the Comptroller of the State of New York as trustee, the other assets of the Savings and Loan Bank, and the borrowing members' shares of capital in the Savings and Loan Bank. The bonds are a legal investment for savings banks and trust funds in the State of New York and are exempt from New York State taxes.

Originally, the Bank was restricted in the issuance of its bonds to a series amounting to not less than $50,000. This restriction, however, does not now exist. As a result, bonds can be issued on behalf of a member association in any amount and at any time, thus avoiding the necessity of accumulating applications for loans until a bond issue of at least $50,000 could be issued for the total, as was previously the case. The scheme of issuing bonds by series lessens the number of distinctive issues. The accumulation of a cash balance gave some elasticity to issuance, for cash could be paid out to borrowers for a time, and the Bank could absorb and hold in its treasury quantities of its bonds, ready for sale when funds were needed by members.

To my way of thinking it would be better if it were not necessary to issue bonds every time a long-term loan is made to a member. The series scheme is queer procedure for a central bank, for it makes its service contingent upon the caprices of the market at time of lending. It would be much more in line with the service of a central bank were the Bank to issue goodly batches of bonds when the market seemed most propitious and be ready with cash when borrowers applied. This method would involve some risk for the Bank; but, if it shouldered the risk, it would be doing a proper service to the members.

The tying of bond issues to specific member loans, each having the same maturities and amortization, has an important defect, in that the member cannot pay off its loan faster than the bond stipulates. Since payments on the loan by the member enable the Bank to meet interest and principal payments on the bonds, synchronization of payments by member and Bank is necessary. This inability of members to make advance payments for redemption of bonds has naturally caused much opposition, and various devices have been employed to reduce criticism. The Bank has the privilege of calling the bonds before maturity, provided it is willing to pay a 2½% premium. This has been done from time to time. The Bank has been able to pick up in the market some of the bonds, but this method has not been important, for few bonds are for sale and then only at a premium. A third device is to switch advances. On occasion, some members may want to pay off their loans, whereas others want to borrow more; under such conditions the Bank may arrange for a transfer of the ad-

vances between the two, putting the offsetting transactions through the cash account of the Bank. This is an awkward procedure, scarcely elevating for a central bank. The Bank should operate on such scale as to be able to accept advance payments of its bonds and to substitute cash or other satisfactory securities for the deposited collateral. Again, a risk is involved, but one which it is logical for a central bank to shoulder.

As a service to members and as a method of gaining their good will, the Bank has on a few occasions called and refunded certain outstanding bond issues. The member was then informed of the lower interest rate payable on its loan to the Bank. The rate was lowered by approximately the difference between the nominal rates on the bond issues, less the amortization of the premium. The new bonds run merely for the unexpired period of the old bonds. When any such refinancing is proposed, the members are notified that they may at that time redeem such portion of the called bonds as they desire.

Bank Charges

In the issue of bonds the law allows the Bank to charge each member an annual commission, not exceeding ½%, upon the outstanding bonds issued on its behalf; this rate of commission in any year must be the same on all outstanding bonds. In lieu of charging such commissions, the expenses incurred on account of any bond issue may be charged to the member on whose behalf the bonds are issued, and the general expenses of the Bank may be assessed against the members in proportion to the bonds issued for them. The Bank adopted the former, the commission, method of recouping its expenses, probably because it was the easier to operate.

The commission charge has caused much criticism and dissension among the members. The percentage has drifted downward from ½% to ⅛%, where it now stands. Once the rate was lowered it was difficult to raise it again. Although designed merely to recoup costs of the long-term loan service, no careful cost accounting was ever devised by the Bank to determine what rate was proper. Instead, the Bank levied what it thought it could get, even though below actual costs. The costs no doubt vary with the volume of business, and the commission rate should vary accordingly; a flat permanent rate is contrary to the original conception. Since the commission represents an addition to the cost of money borrowed, there is no sound reason why it should not be included directly in the interest rate charged. As it stands, it is surely an anomalous practice for a central bank to employ.

On a few occasions the Bank has rediscounted some of the members' short-term notes and on a few other occasions has borrowed on collateral. This practice was first authorized by the board of directors in 1933, for the purpose of supplying the Bank with funds for making further short-term loans to members. Such rediscounting or borrowing was done with the New York City commercial banks. It is not a common practice; it is employed only for a few days at a time and in connection with refinancing of bonds. Although wholly innocuous and defensible, it is anomalous for a central bank to rediscount its paper with commercial banks, reversing the usual dependence of commercial banks on the central bank.

Depository Function

The Bank also began in 1933 to accept deposits from member institutions. The new practice was part of the reform movement of that period whereby the

Bank tried to increase its prestige and usefulness to members. Bills were unsuccessfully introduced into the legislature to require all associations to become members and to carry minimum cash reserves with the Bank. The management was anxious to have members think in terms of the central bank rather than of the commercial banks, and to that end had the Bank offer a more rounded service, including that of depository. Besides supplying the Bank with a source of funds and of earnings and thus indirectly increasing its dividend to member shareholders, it was felt that the Bank knew the savings and loan business better than the commercial banks and could therefore advantageously serve the member in the capacity of New York City correspondent better than the commercial banks. The primary motive was not to get cash and increase earnings of the Bank, although it did urge members to build up their cash funds and strengthen their position.

The Bank accepts no time deposits and does not pay interest on deposits. Against its deposits and other liabilities the Bank has no fixed policy of reserves. Cash balances are perennially too large, and about half of the Bank's liquid funds consists of securities, including some of its own, in which some of its cash is invested. The Bank has not needed to carry a heavy cash reserve because the market for its bonds has been so good and dependable. The remainder is deposited with certain depository banks, those which understand best the savings and loan business, and which serve the Bank as custodian of securities, registrar of bonds, purchaser of bonds at time of issue, and helper in issuing and refunding bonds.

Conclusion

Elsewhere[1] I have developed the thesis that the Federal Home Loan Bank System has failed to develop and constitute a central bank in the home-mortgage field. The evidence set forth above shows that the System's progenitor and prototype, the Savings and Loan Bank of the State of New York, fails even more to function as such a central agency. Only in the field of lending to members has either institution tried to play such a role, but even in this capacity it has been a sorry success. The failure is largely born of the want of comprehension of what a central bank is for, a refusal to operate it either as a daily source of funds or as an emergency institution, but not as both, a disposition to shackle the system's operations with the same sort and abundance of endless petty restrictions as have proverbially encumbered the building and loan association, and a preoccupation against member borrowing.

[1] *Bankers Monthly*, July and September, 1939.

I. The Theory of Highway Costs and Their Allocation

By EDWARD D. ALLEN*

DURING the last 30 years, governmental units in this country have embarked on a program of rapid expansion in highway expenditures. The level of those expenditures has now risen to approximately two billion dollars a year. One result of this expansion is that public policy regarding highways is now undergoing a thorough reexamination.[1] If it is granted that highway expenditures should promote an economic allocation of resources and that the costs involved should be apportioned among beneficiaries on an equitable basis, then the fundamental issues involved in this reconsideration of public policy seem clear. Among the most important are these: (1) How shall the continuing costs of the present highway plant be allocated among general taxpayers, motor-vehicle users, and other benefited groups and, within the vehicle group, as among owners of various classes of motor vehicles? (2) What principles should govern approval of expenditures for further improvement of the highway plant, and against what classes and in what proportions should the costs of such improvements, once approved, be charged? (3) How can the annual sums requisite to maintain a given plant or make further improvements in it be spent most efficiently?

If these important questions can be answered, an analytical basis may be found for suggesting changes in our present methods of revenue-raising for highways and for insuring that, in the future, these revenues will be expended in a manner calculated to bring about an economic allocation of resources. This article will deal with the first of the three major questions noted above. The answer to that question, however, cannot be attempted until two other questions have been discussed—namely, (1) what are the annual economic costs of a given highway plant, and (2) what theory of governmental functions should be fundamental in the provision of highways? A discussion of the nature of highway costs therefore becomes our first consideration.[2]

The Nature of Highway Costs

Highway costs are one component of highway transportation costs, of which the other is vehicle operating costs. The latter include such fixed cost items as interest on the investment, license fee and property tax, garage, insurance and depreciation, and such variable cost items as tires, gasoline, oil, repairs and, for commercial uses, allowances for driver's salary. Except for vehicle-user taxes, vehicle operating costs are of little *direct* concern in highway finance, since

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[1] Evidence of this is found in the numerous recent studies of highway costs and their allocation and of the long-run problems of highway "planning." Most comprehensive of these studies are the State-Wide Highway Planning Surveys in 46 states now being brought to completion under the auspices of the U. S. Bureau of Public Roads. Important studies on highway costs and their allocation have also been made recently by the highway authorities in Illinois, Missouri, Washington, and Oregon.

[2] This article is confined to the question of costs of the present highway plant and their allocation. It follows that many questions peculiar to the financing of capital improvements, such as the use to be made of special assessments, bonds and federal aid, will not be discussed in this article.

nearly all vehicles in use are privately owned. Vehicle-user taxes are, however, the prime sources of revenue for the highway plant, and as such raise fundamental problems as to their adequacy and equity.[3]

What the term "highway costs" includes depends on the interpretation of the word "costs." From the broad, economic point of view, highway costs are perhaps best defined as the annual sums necessary to provide full payment for the use of scarce resources devoted to highways rather than to alternative forms of investment. Defined in this way, costs clearly include maintenance, administration and supervision, policing and traffic control, and an annual depreciation charge on all portions of the plant subject to exhaustion in service-rendering capacity, so that such service-rendering capacity will remain "intact" over time. Many students now go farther and include also interest on the entire unamortized investment, and some even contend that a charge for taxes foregone because the property is publicly owned should be included in the highway-cost concept.

In contrast to this economic concept of costs, costs are sometimes identified with the annual financial requirements of the highway plant. Thus defined, costs include outlays for maintenance, administration and supervision, policing and traffic control, as in the definition above, debt amortization and interest arising out of past borrowing, and, for an expanding plant, outlays for capital improvements.

To identify costs with financial requirements, however, confuses economic costs and expenditures. The concepts differ in at least three ways. First, costs are defined with reference to charges made for use of resources required to operate, maintain, and replace a given highway plant; expenditures refer to outlays on a plant which may either be growing, declining, or remaining static. It follows, for example, that in the case of an expanding highway plant, expenditures will exceed costs, since only the portion of the total service life of the improvements used up in a particular year can be charged as a cost in that year. Second, costs do not depend on the particular financial arrangements under which resources have been obtained. Interest as a cost appears as interest on the entire unamortized investment, not simply as contractual interest on that part of the plant which may have been financed out of borrowing in the past. Third, costs include charges which may not become actual outlays on highways in the same period, if ever. Thus, depreciation charges on a plant which has ceased to expand might not involve actual outlays on replacement of plant for a considerable period, and revenues raised to cover interest on the entire investment would be available continuously for other governmental purposes or available for tax reduction in other than vehicle-user taxes. Only in the special case where costs were defined to include depreciation, but not interest or taxes, where the plant had ceased to expand, and where no borrowing in the past had left a heritage of debt amortization and bond interest would costs and expenditures in a given period tend to

[3] Vehicle operating costs are of considerable *indirect* importance in the broad field of highway economics. The possibility of savings in such costs in passing from a lower- to a higher-type road should affect highway planning and ultimately affect the system of highway finance which is used. Thus, the case for an improved road can be justified on quantitative grounds if it can be shown that annual savings in operating costs for the present volume of traffic will be more than sufficient on the higher type of road to offset the higher annual road costs, and savings in operating costs are one of the types of benefits to vehicle users which justify financing improved roads by user revenues.

equate. Given these differences between economic costs and financial requirements, it seems desirable to reserve the term "costs" for those economic charges associated with use of resources in the given plant, and to apply the term "expenditures" to actual cash outlays made on account of either an expanding, static, or declining plant in a given period of time.

Identification of costs with the annual sums necessary to provide full payment for the use of resources and interpretation of "full" payment to include depreciation, interest, and even taxes foregone have found increasing favor in recent years with students of highway finance. Depreciation, for instance, is viewed as a logical charge on the ground that those who use up present highways provided out of public revenues in the past should pay a sufficient amount for those services to pass on equally good highway facilities to users of the future. Again, an interest charge on the unamortized investment is included on the ground that it constitutes a payment by beneficiaries of highways for capital devoted to highway transport rather than to alternative purposes within the private economy. Basically, acceptance of this view of costs implies also acceptance of the view that the highway function of government is primarily the provision and maintenance of a transport facility or public utility monopoly, whose continuous financing should be approached from the commercial point of view (in so far as that approach is politically feasible) and whose costs should be assessed for the most part against users of that facility.[4] The advantages which accrue from adoption of this approach will be noted later in this article.

If an effort is to be made to include in annual cost computations such items as depreciation, interest, and an allowance for taxes "foregone," then a question immediately arises as to the method of valuation to be used in arriving at the present value of the highway plant, and hence at the amounts to be assigned to these components of cost. If the highway plant is to be regarded fundamentally as a transport facility to be operated as a public utility, the need for such a valuation figure is clear. Having obtained it, the governmental unit concerned with highway administration over a large area, such as a state, can then determine what "rates" (vehicle-user taxes) must be charged if the service-rendering capacity of the "utility" is to remain unimpaired and if the "utility" is to earn a "fair" return on the investment.[5]

Methods of valuation are the usual ones of (1) historical or original cost minus depreciation, or what may be called the method of "actual investment value," (2) reproduction or replacement cost minus depreciation, or (3) some combination of the two. Neither method nor any combination of them is perfectly satisfactory. Nevertheless, use of some method of valuation would increase the "exactness" of annual costs and may surely be defended on this basis.

Increasing attention is now being given by the Bureau of Public Roads and the various states to the questions of valuation and depreciation. Thus,

[4] To the writer's knowledge, the case for this general approach was first clearly and concisely stated by Professor Shorey Peterson in "Highway Policy on a Commercial Basis," 46 *Quarterly Journal of Economics* 417–43 (May, 1932). In the present article, the writer has attempted to build on the foundation laid by Professor Peterson.

[5] Even if the provision of highways were still to be regarded as simply one of the general functions of government, valuation might serve some purpose, providing an effort were made to estimate annual depreciation and to charge for it through the general tax levy on property. A public utility concept of the highway plant, however, is really implied when the valuation problem is emphasized.

through the State-Wide Highway Planning Surveys now under way in 46 states under the auspices of the Bureau, attempts are being made to gather historical-cost data on the primary or trunk-line roads for purposes of valuation. Simultaneously, broad studies are being made by the Bureau on the service-life of different types of surfaces under various types of traffic conditions, in order to make possible intelligent depreciation charges. Finally, systems of standardized accounting are being developed for the highway plant. If and when these systems come into use, records of actual investment cost should become progressively more complete and accurate.

At the present time, however, a consistent "valuation" of the highway plant will have to proceed on a replacement-cost basis, since nothing like complete records on actual investment are available for the component parts of the highway plant. Whatever the approach to valuation, the significant fact, and one encouraging to students of highway finance, is the increasing interest in and knowledge of the valuation problem which will promote more accurate estimates of annual costs in the future.

General Benefit vs. Public Utility Theory of Highway Provision

In connection with the theory of cost allocation, we find two major theories respecting the financing of highways and streets, both partially represented in our present revenue system. The general benefit theory holds that provision of highways results essentially in indivisible, social benefits, should therefore be considered as one of the general functions of government, and should be financed largely by taxes levied against the general taxpayer. Until the advent of the motor age between 1900 and 1910, this theory had held complete sway since the turnpike era of the early 19th century. Up to about 1910, rural highways were essentially of local concern and their maintenance was regarded as an obligation of general taxpayers within the particular governmental unit. In practice, of course, this meant property taxation. Within urban communities, use of special assessments for construction or improvement of streets was common, but annual maintenance was met for the most part out of property tax levies.

Even today, with the character and amount of highway use so vastly changed, social benefits of highways are often cited as justification for continuing general taxation. Since a system of unimproved roads, whether urban or rural, is necessary to provide means of intercourse between parts of the community and means of access to property, it may be argued that the costs of a system of this type represent the minimum which should be financed by general taxation. As for improved roads, it has been pointed out that they promote (1) recreation and health, (2) education, both because travel is beneficial and because the consolidated school is thereby made possible, (3) the breaking down of rural isolation and urban congestion, (4) better postal service, and (5) better national defense. Therefore, the implication is that general taxation should have an important place in financing improved roads.

In contrast to the general benefit theory is the public utility theory already mentioned. According to this theory, the entire highway plant of the state and its subdivisions is looked upon as essentially a unit, whose parts are interrelated because traffic passes freely and extensively among the various road systems, urban and rural, which com-

pose it, and whose character is that of a transport facility providing essentially private uses. Highway users are looked upon as representing a demand for either a consumption service or a business service, and payments made by them in the form of license fees, gas taxes, or other special-user taxes are regarded as fees or prices for use of the highway plant.

This newer theory is an outgrowth of the expansion of highway expenditures in the interest of motor-vehicle users and of the change in the character of highway use in the last 30 years. Not only have owners of motor vehicles themselves been chiefly responsible for the demand for improved highways, but there has also been an increasing use of highways for commercial purposes. The prevailing range of movement has been steadily widening and there has been an increasing tendency for city-owned vehicles to appear on rural roads, and vice versa. All these facts have seemed to suggest the emergence of a great transport facility. Recognition of the responsibilities of users of this facility for its costs is already seen in the existing systems of special motor-vehicle-user taxes which have been adopted in all states. The public utility theory of the highway plant simply goes farther. It suggests formal recognition of highways as a transport facility; it defines the costs of these highways in the inclusive fashion already noted; and it requires full recognition of elements of vehicle-user benefits as the main basis for meeting these costs.

In minimizing the social implications of highways already noted, proponents of this newer theory have pointed out that, throughout industry, "social by-products whose effect is diffused and imponderable count neither in the allocation of productive resources to particular uses nor in the apportionment of production costs among beneficiaries,"[6] and that, for the most part, there is no reason why they should do so in the case of highways.[7]

Factual support for the newer point of view that the entire highway plant should be regarded as a transport facility of interrelated parts has been provided by the State-Wide Highway Planning Surveys, previously mentioned. In Oregon, for example, road-use studies yielded the results shown in Table I.

TABLE I. ORIGIN OF TRAFFIC ON VARIOUS ROAD SYSTEMS IN OREGON (1936)*

Vehicle Owners Resident In	Derivation of Traffic on Various Road Systems, by Place of Ownership of Vehicle			
	Primary Rural	Secondary Rural	County Rural	Urban Streets
Rural areas....	34.5%	58.4%	69.7%	16.0%
Urban areas...	65.5	41.6	30.3	84.0
	100.0%	100.0%	100.0%	100.0%

* Based on data presented in the Oregon Highway Planning Survey published in 1938 by Oregon State Highway Commission.

Other road-use and traffic studies of the Planning Surveys are similarly revealing. In Iowa, for example, the data, when released, will show that each of the rural road systems draws a considerable portion of its traffic from all other road systems, rural and urban, and that, even in the case of urban streets, traffic which

[6] Shorey Peterson, *op. cit.*, p. 425.

[7] Professor Shorey Peterson has pointed out in this connection that "it would be difficult to establish that highways contribute more to health than do industries furnishing food, clothing and shelter.... The other benefits of roads may be similarly interpreted. Newspapers, books, theaters, transport facilities other than highways contribute to the mosaic of our national culture. Agriculture, railroads, the steel industry are necessary to the national defense. Most production is socially important, but so long as the ordinary demand for the product is sufficiently great so that the social by-product is incidentally realized, we are commonly content, and do not expand upon the social implications." (*Ibid.*, p. 426.)

originates in rural areas makes a considerable contribution.[8]

Finally, legal support has also been provided recently for the public utility theory. In *Breashear Freight Lines, et al.* v. *State of Illinois*,[9] the federal district court for southern Illinois said:

"The highway system owned by the state and its subdivisions is a public utility supplying facilities which constitute an actual monopoly which is subject to inter-government regulation and control. The actual cost of operating such utility should be determined in the same manner as for a privately-owned public utility,"

and should include, according to the court, depreciation, interest, and taxes.

Advantages of the Public Utility Approach

As the writer sees it, an approach to highway finance through the public utility theory offers important advantages over an approach through the general benefit theory. First, it would tend to promote equity in taxation by eliminating any subsidization of vehicle users by general taxpayers which may still exist in tax systems of the various states. This is because it would require that those using the transport facility pay for its costs to the full extent that highway benefits are obtained through road use. The responsibilities of general taxpayers for support of highways would be minimized, vehicle-user charges would definitely emerge as prices or fees rather than taxes, and criticisms that such charges are taxes not levied according to the ability principle would cease to be given serious consideration. Much progress has already been made in this direction in the last 25 years, of course. In 1936, nearly 79% of total state and local tax revenues for rural roads came from motor-vehicle taxes, although for secondary rural roads the figure was only 41.2%.[10] Whether or not a serious problem of subsidization still exists can only be determined by analysis, similar to that developed later in this article, of the revenue-raising systems of specific states. Certainly in financing urban streets the problem still exists in most states, as will be shown subsequently.

A second advantage of the public utility theory is that it would tend to promote an economic allocation of resources (a) as between expenditures of funds through the public economy and alternative expenditures through the private economy and (b) as between commercial uses of highways and competing forms of transportation. Thus, if vehicle-users as a class were to pay their full share of total costs as previously defined, it seems likely that pressure for expenditures on highways by this group would be conditioned more than at present on a consideration of alternative benefits to be obtained by private uses of the resources required. Again, if users of the highways for hire were required to pay their full share of costs thus computed, the rates which they would charge for their services would reflect with some accuracy their "unsubsidized" competitive position with respect to the railroads and other competing modes of transportation. In so far as comparative rates determine shippers' choices of the mode of transportation to be employed, a satisfactory distribu-

[8] If these studies indicate any relative independence in portions of our highway plant, it is found in the case of urban streets. Here the percentage of traffic using that system which arises within urban limits rises to 90% or more in the case of large cities. This suggests that the proposition that the highway plant is entirely an integrated system requires some qualification and that a place does exist for administrative units other than the state. It does not destroy, however, the general validity of the commercial or public utility approach to highway finance.

[9] Decided in 1938.

[10] These percentages are based on figures in the bulletin "Highway Tax Costs, 1936," published by the National Highway Users Conference, Washington, D.C.

tion of private resources devoted to alternative types of transportation would result. Similarly, managers of business enterprises now operating their own vehicles on the highways would be compelled to weigh more carefully than at present the relative costs by rail and by their own vehicles.

A third advantage of the public utility approach is that it tends to clarify the issues in the much-discussed problem of diversion of user-revenues from highway to other public uses. The problem itself may conceivably arise in three types of cases. First, there is the case in which user-revenues are designed to provide a net return on the investment in the highway plant, and in which revenues diverted represent a portion or all of this net return only. In this case, such limited diversion would not seem necessarily undesirable. Given the public utility approach, there is no reason why sums representing public "return on investment" should be expended on highways after investment of public funds in other types of services seems to promise a larger social income. Second, there is the case in which revenues diverted claim a portion of annual depreciation sums in addition to net return on investment. Here diversion seems indefensible. If highway users pay for use of highway facilities including allowances for depreciation, such sums should be devoted to maintaining the service-rendering capacity of the plant over time, unless the "demand" for highway transportation is declining. Third, there is the case in which user-revenues are expected to produce annual sums in excess of annual costs of the given plant and in which a portion of this excess is diverted from the highways. Here the problem is more complicated. Diversion is certainly to be condemned if it is clear that highway development has not reached an "optimum" point, so that continuing capital expenditures are justified.[11] Diversion is also to be condemned if, when highway development has reached an optimum point, it is clear that an expansion in other types of public expenditures would be "wasteful." This case indicates reduction in user-revenue schedules themselves. Finally, if development of the public utility has reached an "optimum" point and if pressure for expansion of the public economy continues in other ways which are not "wasteful," then the problem of diversion becomes primarily one of determining the most desirable types of taxes to use in financing general government functions. User-revenues diverted to non-highway uses under such circumstances cease to be prices or fees justified on the basis of special benefits and become merely types of taxes levied contrary to the principle of ability-to-pay. As such, there would be an a priori argument against this type of financing, but the problem is one of the entire tax system, and as such is beyond the scope of this article.

A final advantage of the public utility theory accrues to highway planning, where adoption of the "business enterprise" approach would tend to promote an economic allocation of resources in the choice of roads to be given priority

[11] The "optimum" point in highway transportation would be the point at which total transportation costs (the sum of vehicle operating costs and highway costs) were minimized. When this point will be reached is impossible to say, but studies of vehicle operating costs on various types of surfaces already completed in the Engineering Experiment Station of Iowa State College indicate that we are unlikely to approach the "optimum" point in the near future. These studies show, for example, that even for unimproved roads carrying as few as 20 vehicles a day, the higher annual costs of a low type of surfaced road would be more than offset by savings in vehicle operating costs. If this be true, then the mileage in most states for which a program of improvement can be justified on purely economic grounds is still so great as to guarantee "productive outlets" for user-revenues for a long time to come.

in initial improvement or in further improvement. Thus, the ability of a road to pay for its improvements in savings in vehicle operating costs or in other benefits to traffic would be made the prime requisite for road improvement or continued outlay on a road already improved, and the order of claim of roads to improvement would be based on their relative excess of benefits—monetary and otherwise—over costs.[12]

Even if the excellence of the public utility theory be granted, however, some place may still be left for the general benefit theory and consequently for general taxation. But where shall the line be drawn between vehicle-user and general tax support? This is a question which has seldom been clearly analyzed, certainly never settled in quantitative terms. Perhaps the commonest suggestion in the literature is that the costs of "general use" roads should be levied against vehicle users, the costs of "local use" roads against the general taxpayers of the communities which provide them. But this is no real solution. Traffic surveys in a number of states in recent years have revealed that it is impossible to classify most roads as definitely of one type or the other. Figures from a 1932 Michigan traffic survey (Table II) bear out this statement. Even for township roads as a class, according to this survey, nearly 20% of the traffic originated outside the county. Only where rural roads serve practically no one but residents adjoining them would the distinction between "general" and "local" roads seem to have much validity. Even here, a case hardly exists for general tax support. Rather, from the standpoint of equity, it would seem that either such roads should be allowed to return to the status of private roads or be supported by annual levies on owners of adjoining property.

TABLE II. ORIGINATION OF TRAFFIC ON MICHIGAN ROADS, 1931*

Road System	Where Traffic Originated		
	Within Township	Within County	Outside County
Primary.....	16.4%	23.2%	60.4%
County.....	39.0	30.5	30.5
Township.....	60.5	21.0	18.5

* "A Survey of Highway Transportation," 13 *Public Roads* 190 (February, 1933).

In general, the writer feels that only by examining intensively the nature of benefits derived from a road system, whether unimproved or improved, whether urban or rural, will it be possible to indicate to what extent the benefits accruing from a highway plant are closely enough tied in with vehicle use to warrant meeting the costs of that plant through user-revenues. It may be possible to arrive at some quantitative basis for cost allocation which is not highly arbitrary. At least, it should be possible to indicate the limits within which quantitative allocation may take place.

The final instalment of this article which will appear in the next issue will present an analysis of the incidence of the benefits of highway use and a suggested basis for cost allocation, together with a critique of the proposed basis.

[12] In addition to the two major theories outlined, with their emphasis on benefits accruing to "society" and to vehicle users, we also find the theory that highways and streets confer special benefits on property owners which show up in increased property valuations and which may therefore be made the basis for partial support of highways and streets. The benefits stressed are usually "land access" benefits, "constant access" benefits, and others. Such reasoning, if sound, provides a logical basis for use of special assessments to aid in financing capital improvements, as well as for continuing support of "purely" local-use roads where other classes of benefits are small. Discussion of this class of benefits, however, has been minimized in this paper, both because questions of financing capital improvements are not being considered and because space does not permit. Later in the article, it is indicated that some place may exist for the support of low-traffic, "purely local use" rural roads by adjoining property owners.

Land Classification to Aid the Appraiser

By CONRAD H. HAMMAR*

MODERN appraising much more than appraising in the past needs the data that land classification can supply. With the lengthening of the loan period on farm mortgages from the former customary 5 to 10 years to 30 years or more, appraisals must stand for correspondingly longer periods. Appraisers need, under this new situation, not only the type of information that will enable them to make accurate reports on the characteristics of the land they appraise but also much more information than they have been able to obtain heretofore concerning the effects on land of past and prospective use. That is, appraisers have a great need for two types of information relating to land. First, they need data on land characteristics and, second, they need, particularly under modern circumstances, to know a great deal about the stability of these characteristics.

Land-classification data now in existence are fairly well suited to provide the first of these two types of information, although, as will be indicated, here too improvement is possible and needed. Types of land-classification work are also being developed to provide much information of the second type. The purposes of this article will be (1) to describe very briefly the types of land-classification information now available to the appraiser, (2) to attempt a critical estimate of the usefulness of certain of these, (3) to point out particular developments in the techniques and methodology of land classification which have some promise from an appraisal point of view, and (4) to suggest the information that a land-classification system should provide in order to be of maximum usefulness to appraisers.

Appraisal and the Generalized Types of Land Classification

A number of types of generalized classifications of land are valuable to appraisers. They provide orientation and permit the appraiser to gain needed perspective quickly. Their usefulness is, of course, restricted and the more generalized their character the greater their limitations for specific appraisal work. Their greatest usefulness to the appraiser occurs in the early period of his career. They must be and are rather quickly outgrown, but they do aid in getting the beginner smartly through the apprentice stage and to that point where he can be depended upon to render useful judgments.

Modern appraisers have advantages over those of 10 years ago because of present availability of certain maps and publications presenting or dealing with the generalized types of land classification. For the information of those who may not have been apprized of their existence, certain of the more important of these are listed below.[1] Since the

* Professor of Agricultural Economics, University of Missouri. This article is a substantial revision of an earlier paper given as part of the program of the Farm Appraisal Conference held at the College of Agriculture of the University of Illinois, October 28, 1938.

[1] Types of generalized land-classification information available to appraisers:

1. Soil Map of the United States, by Curtis F. Marbut and Others, U.S.D.A., 1931.
2. Regionalized Types of Farming in the United States, Planning Division of the Agricultrual Adjustment Administration, 1935.
3. Natural Land Use Areas of the United States, C. P. Barnes and F. J. Marschner, Bureau of Agricultural Economics, U.S.D.A., 1933.

(*Footnote 1 continued on page 278*)

listed publications relate to the entire United States, they contain information pertinent to every state. For the individual states, much additional and more detailed information is available. In one recent report made by a firm of appraisal engineers and directed specifically at the evaluation of a midwestern state as farm-loan territory, a total of 116 maps of the state were used. All the maps were more or less relevant from a land-classification point of view, though they related to a wide variety of topics. This report, more than any other with which the author is acquainted, can be used to give appraisers of the companies to whom the report was submitted an unusually comprehensive description and analysis of the setting of the land or property they are to evaluate.

For the United States as a whole and for the individual states, land-classification data, though generalized, are undeniably abundant. So far, the preparation of similar but much more detailed and accurate information for smaller or local areas, such as the counties, is far from complete.[2] The topographic survey was, for instance, only 26% complete in 1934. The percentage of the area of the country covered by adequate soil surveys is small, though perhaps ⅔ to ¾ of the truly agricultural counties have been mapped upon one basis or another. These types of land inventory and classification need to be completed. Fortunately, progress toward this end is constantly being made.

Classification on the Basis of Productivity

The types of land classification most useful to appraisers are those which enable them to make the most secure judgments regarding land productivity. The soil survey has been among the most useful in this respect but does not serve the purpose entirely satisfactorily. That is, the mapping of soils does not, of itself, tell much with respect to the productiveness and value of land. The bulletins accompanying the maps help interpret them but give far from an adequate analysis of the characteristics of the soil which most determine its productive power.

Just how soil or land may best be classified so as to reveal its productivity is a matter of divided opinion. One of the leaders of soil-survey and classification work prefers the synthetic approach according to which the soil (or land) is regarded as an organic unity to be analyzed as such or as a complex. Unquestionably this approach is important but it needs, if the productivity of land for numerous purposes is to be judged accurately, to be complemented by another and quite as important an approach. Advocates of this alternative approach, the writer included, believe that a thorough knowledge of the land complex will not be obtained without a much greater knowledge of its separable parts. The approach to land classification and analysis which lays emphasis upon the component parts rather than upon the complex has been called the "differential approach."

In a recent Missouri study the outlines of this differential approach were made clear. The analysis was divided into two major parts. First, a selection was made

(*Footnote 1 continued from page 277*)

4. Atlas of American Agriculture, edited by Dr. O. E. Baker, Bureau of Agricultural Economics, U.S.D.A., 1936, containing a wealth of material on the three major topics of land relief, climate and soils, and vegetation.

5. Graphic Summaries of American Agriculture, edited by Dr. O. E. Baker and containing a series of 10 publications presenting in graphic form a vast amount of physical, economic, and social data valuable to the appraiser.

6. *Report*, National Resources Board, 1934 and supplementary reports.

[2] See *Report*, National Resources Board, December 1, 1934, p. 452.

of those aspects of soil and land which appeared to be exerting an important influence in determining its productivity. These separate aspects were called "unit factors," in order to distinguish them from the complex. A considerable number of generalized land-classification maps for the state, based upon these unit factors, were prepared. The unit factors employed included the following:

1. Surface soil texture.
2. Surface soil nitrogen content.
3. Surface soil lime requirement.
4. Surface soil potassium (total) content.
5. Ratio of clay content of subsoil and surface soil.
6. Degree of slope.
7. Depth of surface soil.
8. Surface soil phosphorous (readily available) content.

To regard these as merely physical or soils features is to labor under a misapprehension. Their importance for purposes of measuring productivity is quite as great from the economic as from the physical or soils point of view. These listed unit factors are, to be sure, only a few among many. For instance, one important factor not considered at the time was the surface soil content of exchangeable or soluble bases. Advancing soil and economic research will in time suggest many more.

The second step in the analysis was to relate such of these unit factors as could be measured, first to yields of crops and later to land values. That is, if these factors do underlie productivity, they must be related to yields and to values. Table I presents the coefficients of correlation between variations in certain of these unit factors on the one hand and yields or values on the other.[3] In every case the relationship is significant or at least one which could hardly have occurred merely by chance. The correlations go a long way in explaining variations in yields and values. Indeed, variations in exchangeable bases alone explain 84% of the variations in land values.

These highly significant relationships, together with the known fact that nitrogen, phosphorous, and exchangeable bases are major fertility components, go far to establish the usefulness of the differential approach to land classification. That is, the results of the study—namely, that land high in nitrogen, phosphorous, and exchangeable bases, having a medium texture, a uniform and fairly open structure, and an undulating topography, is highly productive and highly valuable land—are eminently sensible. Quite as clearly, land low in fertility, with poor texture and structure and having a hilly topography, will be unproductive and low in value.

Furthermore, it appears feasible to discover much more than is now known about these specific qualities of lands. Soil type cannot be measured, but many of these unit factors can. It follows also that variation in soil type cannot be related quantitatively to land productivity and value, although, as illustrated by Table I, the associated variations of these unit factors and productivity (and value) may be effectively studied. Indeed, an analysis of them appears to open a new and broad highway to a clearer understanding of the factors affecting productivity and value of land.

The Dimensions of a Land-Classification System Based upon Productivity

There is, perhaps, no need to labor the point that a classification of land, to be of maximum usefulness to appraisers,

[3] For a much more extended discussion of these relationships see Missouri Agricultural Experiment Station, *Research Bulletin* No. 229, "Factors Affecting Farm Land Values in Missouri" (September, 1935). See also the article by the author on "An Approach to the Grading of Land for Purposes of Appraisal," 18 *Journal of Farm Economics* 523 (August, 1936).

should reflect the productivity of the land. To base a land-classification system frankly upon productivity, however, involves a departure from past practices.

A preliminary general principle which needs to be recognized in projecting such a classification is that no one map can be made accurately to reflect differences in productivity. The deeply intrenched idea that the end-product of all land-classification work must be a single map upon which is presented a conglomerate, not to say confused, pictorial version of so complex a phenomenon as land must give way to a more effective approach. The difficulty with such maps as a single end-product has been that only those who make them understand them and even they may not understand them well. The alternative is the differential approach, outlined above, under which all or at least the more salient aspects of land are mapped separately and, if possible, measured, so that a statement of quantitative values may accompany each map. Although the older land-classification agencies are apparently reluctant to recognize a need for changes in technique, the Soil Conservation Service, newly sprung from more staid soil circles, has conceded a point. For their projects in demonstration areas they make four maps to take the place of the single soils map formerly considered adequate. That is, they map soil, slope, degree of erosion, and cover. State planning boards make a great, if somewhat indiscriminate, use of what amounts to the differential approach. They are prolific mappers, and agricultural economists and rural sociologists have made great use of similar techniques.

When land is classified and mapped as a complex, no question arises regarding the number of its aspects to consider in making the classification. They are all to be considered, though in actual practice some aspects may be quite undiscerned. When land is to be classified upon the basis of numerous separable

TABLE I. RELATIONSHIP OF UNIT SOIL FACTORS TO PRODUCTIVITY AND VALUES OF LAND IN MISSOURI COUNTIES

Unit Factor	Yield or Value	Coefficient of Correlation (Linear)	Index of Correlation (Curvilinear)
Nitrogen*	Corn (Average yield, 1911–1933)	+.64	—
Nitrogen*	Crop-Yield Index (Corn, Oats, Wheat, 1911–1933)	+.77	—
Phosphorous†	Crop-Yield Index (Corn, Oats, Wheat, 1911–1933)	+.44	—
Nitrogen*	Land Values‡ (1930)	+.78	.81
Phosphorous†	Land Values (1930)	+.80	—
Exchangeable bases*	Land Values (1930)	+.87	.915
Ratio of clay content of subsoil to clay content of surface soil	Land Values (1930)	−.48	.60

* Content of surface 7 inches of soil.
† Readily available phosphorous in surface 7 inches of soil.
‡ County average land values.

factors, the number of these that could be taken into consideration is almost limitless. That is, a great many factors and circumstances affect the productivity of land. Almost never can all of them be included in a classification and mapping of land and there is need for great sophistication in their selection.

There are, furthermore, bases for making sufficiently perspicacious selections and the problem of doing so has three dimensions.

1. Static and Dynamic Factors Contrasted. One dimension of the problem of selecting proper criteria as a basis for classification is the choice between the static and the dynamic aspects. The physical characteristics of land tend to be static and the economic ones more nearly dynamic. In the past, classifications have been made chiefly upon the basis of the static features, and properly so. Only classifications based upon static features can be lasting. The soil survey, like the topographic survey, classifies and maps land almost wholly upon the basis of static factors.

More recent types of classification, however, have increasingly recognized the dynamic and quasi-dynamic factors affecting the status and grade of land. Thus the Soil Conservation Service maps degree of erosion and cover, both of which are dynamic aspects of land. The Tennessee Valley Authority emphasizes use of and experience with the land, both dynamic, as a basis for its classification. All classifications in which economists have figured are based quite largely upon dynamic aspects of use and experience. Assessed valuations are dynamic but maps of them, particularly when taken in conjunction with maps of tax costs, provide a clue to land quality and to an important aspect of land cost. Maps of tax delinquency indicate how well the land under its current use has been able to stand these public costs. A further dynamic feature, the type of farming, has also been broadly mapped in recent years. Types of farming cannot be stated quantitatively but afford, nevertheless, a most important clue to the "use classification" that resident farmers have accorded their land. The size of the average or typical operating unit is a significant aspect of the type of farming and the pattern of land use. It is, furthermore, quite readily put into quantitative terms. Since erroneous types of land use and poorly adapted operating units are so troublesome a feature of the land economy of the country, these dynamic and economic features of the classification are usually of paramount significance. Indeed, a new term, "land-use classification," has recently come into being to distinguish the more dynamic from the older and more nearly static types of classification.

Unquestionably, the more static features of land upon which its classification is based the more enduring the classification. However, many of the characteristics of land are not revealed in such a classification. In modern times it is often the "behavioristic" aspects we wish to know about. Appraisers, for instance, wish a classification to tell them what the productivity of land will be. Only part of the story is to be discovered in the static aspects of classification.

Future land classifications will range between those based wholly on static and those wholly on dynamic land features. The only general rule that can be laid down regarding the exact choice of factors for a specific classification project is that, other things being equal, the static features should have precedence. Classifications based entirely upon the dynamic aspects are sure to be fleeting. Some of them, such as those based upon

value land, are out of date (though still useful) before they can be published.

2. Experiential Factors in Land Classification. As a second dimension, land classification may or may not be based upon experiential factors. The distinction between the experiential and non-experiential is allied to that between static and dynamic, though the emphasis is differently placed. The experiences of the farmer or forester with land have to do as much with its static as with its dynamic characteristics. The experiential classification is always based upon the behavior of land in productive use and is, therefore, always on a dynamic basis.

Most economic classifications of land are of the experiential type and are, in reality, land-use classifications. The Tennessee Valley Authority classification, as illustrated by the definitions[4] of the five classes into which it divides the land, is distinctly of this type:

Class I. Units characterized by an excellent standard of living and by land exceptionally well suited for both general and specialized agriculture.

Class II. Units characterized by a good standard of living and by land well suited for general and specialized agriculture.

Class III. Units characterized by medium standard of living and by land that can be used for general or specialized crops under proper management.

Class IV. Units characterized by a low standard of living and by land which is suited for pasture but which should seldom be used for cultivated crops.

Class V. Units characterized by a low standard of living and by land unfit for pasturing or cultivated crops.

The useful New York system of classification[5] is of the experiential type and projects in Pennsylvania, Georgia, West Virginia, California, Missouri, and other states have made considerable use of experiential factors. The classifications for purposes of zoning control in Minnesota and Wisconsin are also experiential classifications.

The classification of buildings and farmsteads employed first by Lewis at Cornell University in New York illustrates exceptionally well the effective use of an experiential factor in land classification. The presumption in this case has been that farmers desire good buildings and equipment and that a successful use of the land will therefore be reflected by the size and condition of the buildings and the evidences of a satisfactory volume of business that can usually be discerned by a scrutiny of the farmstead.

A recent Missouri study[6] has made use of the buildings and farmstead classification in a survey of Callaway County. Six classes of buildings and farmsteads were distinguished. The classes are briefly characterized as follows:

Class I. Farms exceptionally well improved.

Class II. Farms with very good improvements.

Class III. Farms with improvements sufficiently good to suggest that the unit will continue in agricultural use indefinitely.

Class IV. Farms with poor improvements, suggesting a weak economic unit on the margin of economic survival.

Class V. Farms with small rickety improvements so dilapidated as to be hardly worth restoring and often no better than those upon farms already abandoned.

Class VI. Abandoned farmsteads.

[4] Briefed from definitions given in an article by G. D. Hudson, 26 *Annals of the Association of American Geographers* 106–7 (June, 1936).

[5] See H. S. Tyler, "Land Classification in New York," 15 *Journal of Land & Public Utility Economics* 233 (May, 1939).

[6] This study is being made under informal cooperative agreements by the Bureau of Agricultural Economics represented by Mr. Alva M. Meyers, Jr. of the Washington office and Mr. Ross J. Silkett of the State Land Use Planning Office located at Columbia, Missouri, on the one hand, and the author representing the Department of Agricultural Economics of the University of Missouri, on the other.

The results of this distinctly experiential classification are of unusual interest to the appraiser. As indicated by preliminary results, the classification of farms disclosed that attempts to use the poor lands of the county for farming purposes had been disastrous. On the infertile and unproductive Marion, Lindley, and Union soil types, 35% of the farmsteads had been abandoned between 1916 and 1938. Of the 65% still occupied, 26 were classified as of the fifth category or so dilapidated that abandonment was imminent. On the other hand, the percentage of farms of definite economic competence (Classes II and III) was only 7% in these same areas.

On the poor soils also roads were bad and often impassable, schools and churches were in disrepair, taxes delinquent, surface erosion severe, and gullies prominent. Furthermore, an analysis of changes in school-child enumeration in school districts located on these same soil types bore out the implications of the classification of buildings and farmsteads. That is, between 1912 and 1938 the number of children of school age in these areas had declined by nearly 40%. Even more significant for appraisal work was the fact that loan experience of mortgage companies had been bad, with high delinquency in payments and a heavy percentage of foreclosures.

The situation in the more productive areas of the county was quite in contrast and it was possible on the basis of the buildings classification and other experiential land-use data to divide the county into two areas, one in which, after nearly a century of land use, agriculture was successful and the other in which it was seriously on the down grade.

Oddly enough also, in view of the traditional belief of economists regarding the customary relationship between intensity of use and land quality, the large operating units were found to be upon the better rather than upon the poorer land types. Thus, in the area of the most superior upland soil (Putnam silt loam), a preliminary tabulation indicates the average operating unit to be 275 acres. In two areas of interspersed Lindley loam and Marion silt loam, both much inferior to the Putnam silt loam, the average sizes of farms were respectively 232 and 189 acres, and in very poor areas of mixed Lindley and Boone loams the average unit was only 142 acres. These data on the size of unit are thought to have an important bearing on the nature of the maladjustment in land use that is apparent in Callaway County. They should also afford an important clue as to steps that need to be taken in correcting the maladjustment.

Modern appraising much more than the appraising of the past needs the data that can be supplied by the experiential types of land classification. With the lengthening of the loan period on farm mortgages, appraisers are now under the necessity of being increasingly aware of the stability or instability of agriculture in areas in which they are working. The experiential types of classification are, in many respects, studies in stability and are, therefore, extraordinarily pertinent in this connection. The classification of farms as made in the Callaway County study provides, for instance, an effective means of separating those areas in which agriculture has attained stability from those in which it may be said to be both unstable and declining. One may indeed say that the experience of several generations of farmers with Callaway County land provided the data for the classification.

3. Purposive Aspects of Land Classification. Distinguishing between the purposive and non-purposive types of land

classification is a somewhat delicate matter. Some of the so-called non-purposive types of classification have in reality the broadest purposes of all. They are made for the purpose of bringing order where chaos prevailed before. Linnaeus wished to systematize his knowledge of plants and devised a method of classification followed ever since. The modern soil survey accomplishes this needed task in its own field.

Such classifications are made for their own sake. Indeed they are in many respects inventories rather than classifications, as Lovejoy pointed out some years ago:

"The inventory proper in the case of land should be like any business inventory . . . it should 'express no opinion, offer no advice and make no plans' but it should assemble all the essential data requisite to the formulation of adequate and workable plans. . . . "[7]

On the other hand, Lovejoy regards land *classification* as "essentially purposive."[8] Actually, it is impossible to differentiate completely the inventory and the classification. The inventory involves more nearly the counting, labelling, and describing, whereas the classification emphasizes the separation of phenomena into areas or groups on the basis of relative homogeneity. The inventory is the basis for the classification but the classification may, quite as much, be the basis for the inventory.

The inventory or general-purpose types of land classification should be the beginning types and, historically, they are actually the first that are made. As these are brought near completion, however, they will probably decline in importance in relation to the distinctly more purposive or more narrowly purposive types of classification.

[7] "Theory and Practice in Land Classification," 1 *Journal of Land & Public Utility Economics* 160–75 (1925).

[8] *Ibid.*

Many purposive types of classification are being carried forward at present. Economic classifications are invariably purposive in character. Lewis, writing of the New York classification, referred to above, says:

"The purpose of the economic study of land utilization in Tompkins County . . . was to determine the location and extent of areas of land adapted to different degrees of intensity of use and to suggest plans for the development of the resources of the different areas."[9]

A recent Minnesota study makes much the same point:

"The object of land economic survey is to assemble information on the various factors involved in the utilization of the natural resources of the area studied that will serve as a guide in determining upon the best program of utilization of these resources. Generally speaking, such a survey includes a study of soil, the forest cover, forest growth, agricultural and industrial development, taxation, public expenditures, human resources, wild life, recreational possibilities, and the factors influencing the development of existing resources."[10]

However, some of the more specifically purposive types of classification illustrate this development even more pointedly. Thus, foresters, though they have made great use of the soil survey, have found it necessary to make much more intensive studies of site quality as it affects tree growth. They have gone so far as to differentiate site quality for many different species of trees. Quite as relevant is the recent study by Sweet and Oskamp of *Soils in Relation to Fruit Growing in New York*. These men introduce their study by stating "that economic pressure is forcing low yielding orchards . . . out of production. That is a very slow process. The adjustment can

[9] See Cornell University, *Agricultural Experiment Station Bulletin*, No. 590, p. 3.

[10] Land Economic Survey of Hubbard County, Minnesota, *Agricultural Experiment Station Bulletin*, No. 317, 1935, p. 9.

be speeded up by making available to fruit growers information on the suitability of soils for orchard purposes."[11] They comment later: "The survey of this area differs from the regular soil survey. Attention has been centered principally on lands which are being used or might be suitable for fruit growing purposes."[12]

Perhaps it is worth while also to note that this rise of the purposive classification has been quite as prominent in other fields. In botany, for instance, plants are classified purposively upon the basis of the kind and quality of their fibers, their vitamin, carbohydrate, protein, or mineral content, their resistance to disease, their drought resistance, and so on.

The purposive type of classification has its limitations as well as its advantages. As the classification is directed toward narrower and narrower objectives, it becomes increasingly useful for a particular purpose but at the same time tends to lose much of its usefulness for any other purpose. Contrariwise, the general classifications, such as the soil survey, serve a great number of purposes but serve many indifferently well.

Modern Land Classification a Tool of Policy-Making

Departing momentarily from the main theme of the relation of classification to appraisal, it is perhaps worth while to point out that land classification in modern times has lost its self-sufficiency and is becoming more and more a tool of policy-making. The development is in keeping with the trend of the times. That is, in a laissez-faire society the suitable types of classification are those which provide needed objective information but which are content to let individuals who use the information make their own policies regarding their use of the land.

After a long era of land use and misuse, however, with both individuals and government becoming aware of the need for land-use adjustment, the newer and more purposive types of classification, and those which propose to test experience, take precedence. Such types of classification are mere parts of the analysis of a much larger picture of land use and policy-making, with the classifications themselves having little independent status of their own. Thus, in the important work being carried on in New York, land classification emerges pretty largely as a by-product of the desire to bring about a better differentiation of lands permanently suited to agriculture from those which should in the future be used for forestry and recreation alone.

The economic classifications being carried on in the various states are of this type, as is the work being done by the Tennessee Valley Authority and the Bureau of Agricultural Economics. Furthermore, the classification work now being done by the Farm Credit Administration and that already made by the firm of appraisal engineers referred to above, in the interests of improving the accuracy and stability of appraisals, are quite as closely articulated with land-use analysis. A land-classification system designed to aid appraisers and to fortify the extension of mortgage credit to agriculture would, therefore, find itself in a goodly company of the other types of classification which have lost something of their self-sufficiency but which are specifically designed to serve large and often very important purposes.

Designing the Appraisal Classification

In designing a system of land classification that will be of maximum use to

[11] Cornell University, *Agricultural Experiment Station Bulletin*, No. 541, 1932, p. 3.

[12] *Ibid.*, p. 5.

appraisers, all the considerations discussed above are worth bearing in mind. The general classifications have been of some aid to the appraiser, but by no means as great an aid as a system designed particularly with appraisal work in mind. Classification for appraisal in the future will, therefore, be purposive, but it will be broadly so. That is, a classification system designed to be of maximum aid to appraisers will serve many other purposes as well.

In general, the system so devised must be of the differential type. Many factors affect the productivity (and value) of land. Dependence upon a single map or classification to give an understanding of all these is unwise and probably unnecessary. Furthermore, adoption of the differential system permits a flexibility in the use of the classification material that is otherwise impossible. In some areas, for instance, the value of land depends largely upon the yields and production of corn. Nitrogen content of soil (one of the unit factors of great importance in a differential system designed to aid appraisers) is a major determinant of corn yields and production and, hence, of land value in corn belt areas. In other areas the soil content of exchangeable bases or of readily available phosphorous may be of critical importance. In still others the texture or structure of the soil or the topography of the land may overshadow other criteria in importance. The differential system has indeed been likened to a card file of information from which the data pertinent to a particular case may be removed without disturbing the remainder.

Second, room or place must be provided in the system for the dynamic and experiential factors in land classification. Many of these affect the class to which the land should be assigned; many of them give important leads regarding the stability of the appraisal in subsequent years. Therefore, they must not be overlooked. The extent to which these factors should be included will, of course, vary with the capacity and experience of the classifiers, the number of factors of real importance, the funds available, and the comprehensiveness that is desired.

In the following outline have been listed the more important factors that should be considered in making an appraisal classification.

I. Soils—particularly separable factors relating to fertility and present and potential erosion.

II. Topography and drainage.

III. Water—sources and cost of obtaining.

IV. Physical hazards—particularly with respect to climate, insect pests, etc.

V. Types of farming.

VI. Yields and production of crops and livestock.

VII. Location factors—i.e., public service facilities, such as roads and schools, and industrial, mineral, recreational, and urban developments.

VIII. Relevant economic and experiential factors—particularly population shifts, technological changes, mortgage foreclosures, tax delinquency, size and condition of buildings, and the like.

The selection illustrates the pertinence of the preceding discussion and needs no supporting comment.

The Supreme Court and Temporary Rate Orders

By ROBERT W. HARBESON*

THE Supreme Court in recent months has handed down a series of important decisions dealing with procedural problems involved in public utility regulation.[1] The most recent of these decisions, and the one with which this paper will be concerned, is *Driscoll et al.* v. *Edison Light and Power Co.*,[2] handed down on April 17, 1939. In this case the Court upheld an order by the Pennsylvania Public Utility Commission prescribing temporary rates pending final determination, with provision for reimbursing the company for any deficiency in earnings below a return finally determined to be reasonable while the temporary rates were in effect. However, the Court did not pass upon the constitutionality of temporary rates based solely on depreciated original cost.

Legislative Background

The background of the decision under review may be outlined briefly. In *Prendergast* v. *New York Telephone Co.*,[3] decided April 16, 1923, the Supreme Court enjoined the enforcement of a temporary rate order issued by the New York Public Service Commission, where the rates fixed were found to be confiscatory and where no provision was made for reimbursing the company for deficient earnings resulting from the order. The New York Legislature in 1934 attempted to meet the Court's objections by adding Section 114 to Chapter 287 of the Public Service Commission Law, enabling the Commission to prescribe temporary rates yielding not less than 5% upon the original cost of a company's property, less accrued depreciation, and providing that the company might recover any deficiency of earnings under a fair return while temporary rates were in effect. This section of the law was upheld by the New York Court of Appeals on July 8, 1936 in *Bronx Gas and Electric Co.* v. *Maltbie* and *Yonkers Electric Light and Power Co.* v. *Maltbie*.[4]

The Pennsylvania Legislature, following New York's example, included in its new Public Utility Law, which became effective June 1, 1937, provisions for temporary rates closely resembling those of the New York statute.[5] Section 310 (a) reads as follows:

"The Commission may in any proceeding involving the rates of a public utility brought either upon its own motion or upon complaint after reasonable notice and hearing,

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[1] *R.R. Com. of Calif. v. Pacific Gas & Elec. Co.*, 302 U. S. 388 (1938); *McCart v. Indianapolis Water Co.*, 302 U. S. 419 (1938); and *United Gas Pub. Serv. Co. v. Texas*, 303 U. S. 123 (1938).

[2] 83 Law. Ed. 677.

[3] 262 U. S. 43 (1923).

[4] 14 P.U.R. (N.S.) 337 (1936).

[5] Provisions for temporary rate orders exist in the statutes of a number of states, but so far as the writer is aware they are in no case closely similar to the New York and Pennsylvania laws. Among the states having statutory provisions of this sort are Indiana, Illinois, Ohio, Virginia, and Wisconsin. The idea of recoupment for deficient earnings under temporary rates is said to have originated in Illinois. For a discussion of the Bronx and Yonkers cases see 36 *Columbia Law Review* 1177–8 (November, 1936); 31 *Illinois Law Review* 404–6 (November, 1936); and the writer's paper, "A Recent Effort to Improve Rate Regulation: Temporary Rate Orders in New York," 13 *Journal of Land & Public Utility Economics* 78 (February, 1937). On temporary rates generally see W. A. Prendergast, "The Economic Emergency as a Factor in Rate Making, An Analysis of the Wisconsin Telephone Order," 10 *Public Utilities Fortnightly* 243 (September 1, 1932); D. E. Lilienthal, "The Regulation of Public Utilities during the Depression," 46 *Harvard Law Review* 745 (March, 1933); J. C. Swidler, "The Legal Status of Temporary Rates," 12 *Public Utilities Fortnightly* 136 and 202 (August 3 and 17, 1933); Elmer A. Smith, "Emergency Rates and Due Process," 14 *Ibid.* 624 (November 8, 1934); and "Temporary Utility Rates," Comment, 46 *Yale Law Journal* 505 (January, 1937).

if it be of the opinion that the public interest so requires, immediately fix, determine, and prescribe temporary rates to be charged by such public utility pending the final determination of such rate proceeding. Such temporary rates so fixed, determined, and prescribed shall be sufficient to provide a return of not less than 5 per centum upon the original cost less accrued depreciation of the physical property (when first devoted to public use) of such public utility used and useful in the public service and if the duly verified reports of such public utility to the Commission do not show such original cost less accrued depreciation of such property the Commission may estimate such cost less depreciation and fix, determine, and prescribe rates as hereinbefore provided."

Section 310 (b) provides that, where a utility does not have continuing property records kept in the prescribed manner, the Commission may, after notice and hearing, establish temporary rates yielding a return not less than the amount of the operating income for the year ending December 31, 1935 or such subsequent years as it may determine, plus or minus such return as it may prescribe on the net changes in physical property reported to, and approved for rate-making purposes by it. In determining the net changes of the physical property the Commission may in its discretion deduct from the gross additions the amount charged to operating expenses for depreciation, or in lieu thereof may determine such net changes by deducting retirements from the gross additions.

Section 310 (c) empowers the Commission to prescribe temporary rates every month or at any other interval if it is of the opinion that the public interest so requires, and it is not prevented from thus changing temporary rates by reason of the existence of proceedings for the determination of final rates.

Section 310 (d) provides that, when the Commission is of the opinion that the rates of a public utility are producing more than a fair return, it may prescribe temporary rates for a trial period of six months, which period may be extended for six additional months. These temporary rates are to yield what the Commission regards as a fair return upon fair value, and unless complained of during the trial period or the extension thereof they become permanent. If such rates are complained of, they remain in effect pending final determination of the rates to be charged.

Section 310 (e) contains the recoupment provision and reads as follows:

"Temporary rates so fixed, determined, and prescribed under this section shall be effective until the final determination of the rate proceeding unless terminated sooner by the Commission. In every proceeding in which temporary rates are fixed, determined, and prescribed under this section, the Commission shall consider the effect of such rates in fixing, determining, and prescribing rates to be thereafter demanded or received by such public utility on final determination of the rate proceeding. If upon final disposition of the issues involved in such proceeding the rates as finally determined are in excess of the rates prescribed in such temporary order, then such public utility shall be permitted to amortize and recover by means of a temporary increase over and above the rates finally determined, such sum as shall represent the difference between the gross income obtained from the rates prescribed in such temporary order and the gross income which would have been obtained under the rates finally determined if applied during the period such temporary order was in effect."

The foregoing statute is an improvement over that of New York, in that the latter merely *authorizes* the Commission to consider the effect of the temporary rates in fixing the permanent rates, whereas the Pennsylvania law *requires* the Commission to do so.[6]

[6] The New York law provides that temporary rates shall yield not less than 5% on the original cost of a

(*Footnote 6 continued on page 289*)

Facts of the Case

Acting under the authority of the foregoing sections of the law, the Pennsylvania Public Utility Commission on July 13, 1937 ordered the Edison Light and Power Company to file a schedule of temporary rates which would reduce the company's gross operating revenue by $435,000 annually.[7] For the purposes of this order the Commission allowed a return of 6% on a rate-base of $5,250,000. It disallowed as an item of operating expenses the sum of $38,710 spent by the company in contesting the instant proceeding and revised the allowance for taxes to correspond with the reduced obligation which the company would have on this account by reason of the reduction in revenues which had been ordered. It also specified that the reduction in rates should accrue to those classes of customers paying more than the existing average rate for electricity. The company, although contesting the Commission's order, admitted that some reduction in rates would be necessary "even on the basis used by it in the presentation of its evidence."[8] On July 27 the Commission issued a new order rescinding that of July 13. In deference to a decision of the Pennsylvania Superior Court in another case on July 15[9] the Commission changed its original order and prescribed a specific schedule of rates in place of those previously charged by the company, but the amount of the ordered reduction and the bases of its computation were not changed.

The company appealed to the United States district court for the middle district of Pennsylvania, claiming that the sections of the law providing for temporary rates violated the Fourteenth Amendment, that the Commission's order imposed confiscatory rates, and that the Commission had made no findings to support its conclusions as to the allowable rate-base. On October 14, 1937, the court issued a permanent injunction restraining the Commission from enforcing its temporary order and the rates determined therein.[10] Justice Davis speaking for the court upheld the company's contentions on all three of the points just mentioned. He held that the order was void in that the Commission had failed "to make such findings or to furnish such facts as would inform the court on review as to whether or not those affected by its determination had been deprived of their legal or constitutional rights."[11] He also pointed out that the Commission had failed to allow for certain expenses which for the year ending June 30, 1937 reduced the company's

(*Footnote 6 continued from page 288*)

company's property, less accrued depreciation. An effort by the New York Commission to interpret the term "original cost" to mean original cost of property when first devoted to public use, and to require in every case the complete writing off of any difference between original cost thus defined and the cost of the property to the reporting company, was invalidated by the state courts in *N. Y. Edison Co. v. Maltbie*, 244 App. Div. 685 (1935), affirmed 271 N. Y. 103 (1936). However, a provision to the same effect in the Federal Communications Commission's system of accounts for telephone companies was upheld in *Amer. Tel. & Tel. Co. v. U. S.*, 299 U. S. 232 (1936). The Court distinguished between this case and the one just mentioned by pointing out that under the rules of the New York Commission "there was an inflexible requirement" that the difference between original cost of property when first devoted to public use and the cost of the property to the reporting company "be written off in its entirety out of surplus whether the value there recorded was genuine or false," whereas in the case of the telephone accounts the Commission could make such disposition of these sums as the facts in each case seemed to warrant (pp. 241–2). The Pennsylvania statute, as indicated above, specifically provides for a return on the original cost of a company's property, less accrued depreciation, when first devoted to public use.

[7] *Pub. Util. Com. v. Edison Light & Power Co.*, 19 P.U.R. (N.S.) 474 (1937).

[8] *Ibid.*, p. 475.

[9] *Penn. Power & Light Co. v. Pub. Serv. Com.*, 19 P.U.R. (N.S.) 433 (1937).

[10] *Edison Light & Power Co. v. D. J. Driscoll et al.*, 20 P.U.R. (N.S.) 353 (1937).

[11] *Ibid.*, p. 356.

return to 3.63% on a rate-base of approximately $5,900,000 claimed by it, and that such a meager return was clearly confiscatory, especially since the company had produced "substantial proof" that a reasonable return for it would be at least 7½%.

Justice Davis held further, on the authority of the Prendergast case, that the constitutionality of rates otherwise confiscatory was not saved by the fact that they were temporary, and that the situation was not changed in this respect by the recoupment provision of the law. With regard to the latter he said:

"It has been argued that the recoupment provision of the Pennsylvania act avoids the infirmity in the New York act which the court pointed out in the Prendergast case. This argument in effect means that it is proper and legal to violate the Constitution if at some future time that violation may be corrected wholly or in part. In other words, it is perfectly all right and permissible to take one's money by force if by and by it may be partly returned to him. If that is so, how long may the Constitution be violated during which time the injured party is without remedy? May it be for a month, as provided in Section 310 (c) or for a trial period of six months or a year as provided in Section 310 (d) of the Act? Such interpretation of the constitutional requirement is unsound."[12]

In this connection he stated that the recoupment provision was not entirely effective since there was no provision for interest on money lost during the trial period and since the company would be without remedy in the case of consumers who discontinued service or moved out of the territory before final rates were fixed, the law having abolished deposits to secure future payments. He denied that the Commission might as well attempt to fix final rates at the outset if in fixing temporary rates it were required to consider all elements which the Supreme Court has said are necessary in order to establish a proper rate-base and avoid confiscation. On this point he said:

"The elements which the Supreme Court in numerous cases has said must be considered in fixing a fair rate, need not be considered with the same care, particularity, and thoroughness with which they must be considered in fixing a final rate, but they must be considered to the extent that will enable the Commission to avoid fixing a confiscatory, temporary rate, for neither the Constitution nor the Supreme Court has made any exception in fixing a confiscatory rate because the rate is temporary."[13]

In a separate concurring opinion Justice Watson agreed that the Commission's order was void because of the absence of findings of fact as to the basis upon which the rate reduction was ordered, but stated that in his opinion the Pennsylvania statute was constitutional. He felt that in fixing temporary rates the Commission should have considered those elements which the Supreme Court has said should be taken into account in fixing a fair rate, but that these elements need not be considered with the "same care, particularity, and thoroughness with which they must be considered in fixing final rates."[14]

Justice Johnson dissented. He held that the temporary rate provisions of the law were constitutional and that the reasoning and conclusions of the New York Court of Appeals in upholding the closely similar New York statute were applicable in this case. He was of the opinion that the recoupment provision of the law afforded the company ample protection, and that "this remedy of the utility against the consumers is no different than the remedy given to the consumers against the utility. If the one meets the constitutional require-

[12] *Ibid.*, pp. 358–9.

[13] *Ibid.*, p. 359.

[14] *Ibid.*, p. 362.

ments, so does the other."[15] Although he agreed that the Commission should have stated the findings of fact upon which the rate reduction was ordered, he did not concur in granting a permanent injunction, but felt that the court should stay the collection of temporary rates for a period of 15 days to afford the Commission an opportunity to remedy this deficiency.

On the basis of the foregoing decision the Commission on November 30, 1937 issued a new order using the same rate-base and rate of return and calling for the same reduction in revenues as in the previous proceeding, but giving consideration to all elements entering into fair value and stating in some detail the basis for its findings.[16] A figure of $4,094,000 was established for original cost depreciated, $4,737,803 for reproduction cost depreciated, and $164,000 for working capital. An allowance of 19% was made for various overheads. No separate allowance was made for going-concern value, although the Commission stated that it would consider this element along with others in determining fair value. No allowance was made for rate-case expense in the instant proceeding, on the ground that patrons should not be required to reimburse the company for the cost of defending admittedly excessive rates. The allowance for taxes was recomputed on the basis of the reduced liability on this account which the company would have with reduced revenue.

The company appealed to the United States district court for the eastern district of Pennsylvania, which on October 10, 1938 sustained the company and granted a permanent injunction against the Commission's order.[17] The court held that Section 310 (a) was unconstitutional in that it did not require a finding of fair value according to the prevailing Supreme Court doctrine; that the Commission's order was void because it violated the procedural requirements of due process in the method used to determine the rate-base; and that the Commission's findings and conclusions were not supported by substantial evidence. It decided, further, that the Commission should have allowed the rate-case expense incurred in the instant proceeding and certain salary increases, and should have allowed for the loss of revenue to the company occasioned by the abandonment of the York Railways Company, one of its important power customers. After making these allowances, the court found that the company's return was 3.65% on the $5,250,000 rate-base set by the Commission or 3.27% on the $5,866,081 claimed by the company, and that in either case the results were confiscatory. The court also held that the Commission had acted in violation of the statute in fixing temporary rates under Section 310 (a) instead of under 310 (b), since the Edison Company did not have continuing property records.

The Supreme Court's Decision

In a unanimous decision the United States Supreme Court reversed the district court and upheld the Commission's order.[18] Mr. Justice Reed, speaking for the Court, stated that the temporary rate provisions of the Pennsylvania statute did not prescribe a method for determining rates except for the limitation that they must yield not less than 5% on original cost less depreciation; that the Commission, following the dis-

[15] *Ibid.*, p. 366.

[16] *Pub. Util. Com. v. Edison Light & Power Co.*, 21 P.U.R. (N.S.) 328 (1937).

[17] *Edison Light & Power Co. v. D. J. Driscoll, et al.*, 25 P.U.R. (N.S.) 441 (1938).

[18] *Driscoll et al. v. Edison Light & Power Co.*, 83 *Law. Ed.* 677.

trict court's decision, had interpreted the statute as requiring it to conform to the fair value doctrine of *Smyth* v. *Ames;* and that "it is not suggested that the Commission omitted consideration of any necessary element in the present order."[19] In view of these facts the Court found it unnecessary to consider the constitutionality of temporary rates based solely on depreciated original cost. On this point Mr. Justice Reed said:

"A different construction would raise the novel and important question of the constitutionality of a temporary rate, based solely on depreciated original cost, with provision for the recoupment of the loss from insufficient temporary rates. In the absence of an authoritative state decision, we are reluctant to accept a construction which brings forward that issue, particularly when the case may reasonably be determined upon the interpretation of the officials of the state charged with the administration of the act. This course observes the very salutary rule that 'this court will not decide an issue of constitutionality if the case may justly and reasonably be decided under a construction of the statute under which the act is clearly constitutional.' "[20]

The Court next turned to the question of confiscation. The Commission's rate-base of $5,250,000, although based upon a consideration of all elements involved in fair value, was approximately equal to depreciated reproduction cost plus working capital as of May 31, 1937. The company had claimed a rate-base of $5,866,081, but in the application for an interlocutory injunction on December 20, 1937 its witnesses agreed that the company's fair value was $5,500,000 and this figure was accepted by the Supreme Court. The Commission was upheld with respect to the rate of return prescribed and its treatment of overheads and going-concern value. The company was sustained, however, in its claim for inclusion of certain salary increases and the expense of prosecuting the instant proceeding and for an allowance representing the probable loss of revenue by reason of the abandonment of the York Railways Company. The Court found that, after making these adjustments of the estimated revenues and expenses, the company would be able to earn 6% on a rate-base of $5,500,000 and that there was no confiscation.

The other issues involved were easily settled. The question was raised whether, in view of the Johnson Act of 1934, the federal district courts had jurisdiction over the proceeding. This measure provides that, when a commission's order affecting public utility rates is attacked as violative of the Federal Constitution, when it does not interfere with interstate commerce, and when it has been made after notice and hearing, the jurisdiction of federal district courts is withdrawn, unless no "plain, speedy and efficient remedy may be had, at law or in equity, in the courts of such State." It was shown, however, that the company could secure protection only by appeal to the federal district courts since the Pennsylvania law forbids state courts to enjoin orders of the commission except in proceedings questioning its jurisdiction. With regard to the contention that the Commission should have issued an order under Section 310 (b) instead of Section 310 (a), since the Edison Company did not have continuing property records, the Court pointed out that no provision in Section 310 (a) limited its application to companies having continuing property records, and that in case of companies having no such records the Commission must in fixing temporary rates arrange for at least a 5% return on original cost

[19] *Ibid.*, p. 682.

[20] *Ibid.*, p. 682, quoting *Thompson v. Consol. Gas Co.*, 300 U. S. 55 at 75–6 (1936).

under Section 310 (a) or the return of an operating income under Section 310 (b) equal to that for 1935 or such subsequent year as the Commission may determine.

Mr. Justice Frankfurter wrote a separate concurring opinion in which Mr. Justice Black joined. He criticized the opinion of the majority as giving "new vitality needlessly to the mischievous formula for fixing utility rates in *Smyth* v. *Ames*."[21] Although he approved the view of the majority that the Court should not "decide an issue of constitutionality if the case may justly and reasonably be decided under a construction of the statute under which the act is clearly constitutional," he felt that this view was inapplicable in the present case since "its rationale is avoidance of conflict with the legislature."[22] Concerning this matter he said:

> "It is one thing to avoid unconstitutionality even at the cost of a tortured statutory construction. It is quite another to recognize the validity of a statute directed expressly to the situation in hand and so employed by the state authorities, when constitutionality of that statute is as incontestably clear as the decision of the New York Court of Appeals has demonstrated it to be in sustaining the sister statute of the Pennsylvania Act, *In the Matter of Bronx Gas and Electric Company v. Maltbie*, 271 N.Y. 364. The Court's opinion in the present case does not avoid issues of constitutionality. It accepts the much more dubious constitutional doctrines of *Smyth v. Ames* and its successors to solve the very easy constitutional issues raised by the Pennsylvania Act."[23]

The writer is of the opinion that it is unfortunate that Mr. Justice Frankfurter's position was not accepted by the majority. The Court had been urged by the Solicitor General of the United States and by the New York Public Service Commission, intervening as *amici curiae*, to take this opportunity to reject outright the *Smyth* v. *Ames* doctrine in favor of prudent investment. Although it may reasonably be argued that initiative in such action is properly a responsibility of legislatures rather than the Court, the latter might properly have validated temporary rates based on depreciated original cost where the test of final rates continued to be the *Smyth* v. *Ames* formula and where provision was made for recoupment in the final rates for any deficiency in earnings under a fair return on fair value while the temporary rates were in effect. The most desirable situation, in the writer's view, would be acceptance by the Court of legislation providing for treatment of existing utility investments according to the fair-value formula, and at the same time providing that the prudent-investment basis should apply in the case of all future contributions of capital. In this way a gradual transition to the prudent-investment basis would be achieved without adverse retroactive effects. Short of this result, validation of temporary rates based solely on depreciated original cost, as suggested above, would probably be the most satisfactory compromise, but the present decision leaves the constitutionality of such an arrangement in doubt. Temporary rates which must conform to the *Smyth* v. *Ames* formula are likely to prove of very limited usefulness, even though they might not have to be determined with the same "care, particularity and thoroughness" as in the fixing of final rates, but the validation of temporary rates based solely on depreciated original cost would constitute a material service to the cause of commission regulation.[24]

[21] *Ibid.*, p. 686.
[22] *Ibid.*, p. 687.
[23] *Ibid.*, p. 687.

[24] For a discussion of the advantages and disadvantages of the temporary-rate-order device, see the writer's paper cited in footnote 5 above.

Depreciation Neglected in the Driscoll Case

By H. M. OLMSTED*

Editorial Note: After receipt of Professor Harbeson's manuscript Mr. Olmsted submitted a discussion of the Driscoll case. Because of the prior acceptance of Professor Harbeson's article, Mr. Olmsted has confined his comment to the depreciation aspects of the case.

THE decision of the United States Supreme Court in the Driscoll case, discussed by Professor Harbeson in the foregoing paper, should be of aid in clearing the path for speedier rate adjustments. Mr. Justice Reed's opinion, however, illustrates one great danger if original cost or its allied criterion, prudent investment, is finally to be approved as a proper and sufficient basis for establishment of utility rates.

The Reed opinion mentions, for illustrative purposes, an "original cost rate base" of not more than $4,926,215.07. This figure is based upon original cost without any deduction for depreciation. Such a rate-base would only be fair to the consumers if the annual allowance for depreciation as an operating expense were to be placed on a sinking-fund basis, so that the consumers' contributions for depreciation would earn interest until needed, thus reducing the amount necessary to be provided out of operating revenues. If the consumers' contributions, however, are not reduced by virtue of such interest, but are permitted to build up a depreciation reserve without the benefit of compound interest on the accumulations, then the amount of that reserve (representing the excess of the total accumulations over the cost of property retired and charged against the reserve) or at least a percentage for depreciation, such as would be recognized in case of a reproduction-cost appraisal as a matter of course, should be deducted from the original cost of the property as a whole. This is partly because the plant actually depreciates, but also because the depreciation reserve represents money which is furnished by the consumers and reserved for depreciation, and not capital paid in by the company's investors, and which is usually expended for plant extensions or outside investments, the earnings from which go to the owners of the company.

This important distinction is not recognized in the Supreme Court's opinion and does not seem to have been clearly presented to the Court. The Pennsylvania Commission, however, allowed the Edison Company $142,531 as the annual provision for depreciation, to be charged against earnings, or more than 3% of the undepreciated original cost ($4,600,000) as found by the commission; a sinking-fund depreciation allowance should be substantially less. Furthermore, the company had built up a huge depreciation reserve, which according to the commission's decision[1] was $2,231,901. The use of undepreciated original cost as a rate-base in such a situation gives the company the benefit of a very large accumulation of property or funds derived from the consumers rather than from its own investors.

It is highly important that advocates of original cost for rate-making purposes make clear to the courts that accrued depreciation must either be deducted from

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[1] *Pub. Util. Com. v. Edison Light & Power Co.*, 21 P.U.R. (N.S.) 328, 335 (1937).

original cost in determining the rate-base or that annual depreciation must be on a sinking-fund basis; and that prudent investment, where a depreciation reserve has been accumulated out of revenues, is not the full original cost, but the difference between the total cost and the accumulated reserve. Otherwise, the adoption of actual cost rather than reproduction estimates, although resulting in simplification of the rate-making process, may result in substantially higher rate-bases than are produced by use of reproduction cost less depreciation.

Effects of Strip Mining on Agricultural Areas in Illinois and Suggested Remedial Measures

By H. W. HANNAH* *and* BERT VANDERVLIET†

FOR nearly 75 years coal has been produced commercially in Illinois by the process known as stripping, or strip mining. As early as 1866 a mine was operated on Grape Creek in Vermilion County. At about the same time, stripping operations were being carried on along the Rock River in Henry County and probably at points in southern and western Illinois. No special machinery was used at that time. The coal was taken from veins near the surface; and plows, scrapers, and horses could be used economically in removing the overburden. The coal was taken up entirely by hand. This simple method of mining is still employed on a small scale by farmers and local people who own small coal deposits near the surface.

Development and Extent of Strip Mining

Following these early operations, mechanical devices of various kinds were tried out with only moderate success. About 1890 the improvement of mechanical mining and loading lowered production costs and consequently allowed heavier expenditures for stripping; but the removal of the overburden continued to be the major problem. After a great deal of experimentation, the essential features of the large modern shovels were worked out; and, since 1924, additional improvements in methods and increased size and power of machines have induced mine operators to go "deeper and deeper for less and less."

Effect of Improved Techniques. In 1924 the general belief was that it would be unprofitable to strip a vein of less than 48 inches in thickness; in 1927 this estimate had been reduced a foot; and now it is still less. It was also considered unprofitable to strip coal covered by an overburden greater than eight times the thickness of the coal vein. This ratio has been multiplied. Formerly it was believed that a shovel of eight cubic yards' capacity would be the maximum that could be used. Now shovels of five times this capacity are being used. These changes in size and capacity, plus the fact that the new shovels readily cut through layers of mineral deposits formerly requiring blasting, have greatly increased the thickness of the overburden which may profitably be removed. It has been said that one of the large shovels recently used in Indiana had a dipper capacity of 30 cubic yards, weighed 2,000,000 pounds, developed 2,500 horse power, had a lifting force of 300,000 pounds, a digging height of 100 feet, and a digging radius of 115 feet. It was capable of moving from 2,000 to 3,000 cubic yards of earth per hour. At this rate it could have stripped 60 feet of overburden from an acre of land in approximately 40 hours.[1]

Efficiency of Strip Mining. The re-

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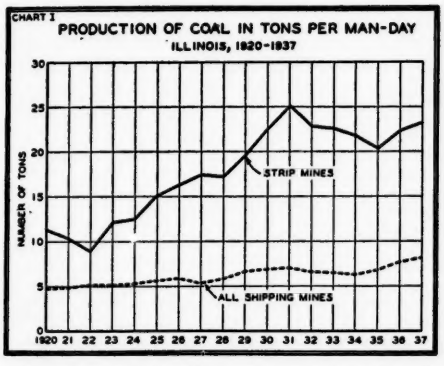
The views expressed in this article are those of the authors and not necessarily those of the organizations with which they are associated.

[1] *Popular Mechanics*, May, 1936.

covery of coal through stripping is high, exceeding, on the average, 85% of the total underlay. Also, it has been stated that, from the geologic point of view, strip coal is not inherently of poorer quality than deep-mine coal except for that near the surface which has been exposed to weathering. Many strip-mining companies maintain equipment for cleaning and grading their coal; as a result, prejudices against strip-mined coal are gradually disappearing.

That strip mining is an exceedingly efficient method of producing coal is shown by the fact that in Illinois, according to figures taken from the 1937 *Coal Report*, shipping strip mines produced 23.46 tons of coal per man-day of labor employed, whereas shipping deep mines produced only 8.16 tons per man-day (Chart I). Further evidences of the efficiency of stripping are seen in the data on comparative costs, especially labor costs, shown in Tables I and II.



In view of the facts stated thus far, it is evident that, if strip mining was creating problems in agricultural areas a few years ago, those problems, whatever their nature, must be more acute now than then, and promise to be even more serious in the future—assuming continued absence of regulation. "It does not appear that strip coal mining is a dying industry, but will continue to compete with underground mining for some years"[2] (Chart II).

[2] U. S. Bureau of Mines, *Information Circular* 6959, p. 87 (October, 1937).

TABLE I. ITEMS OF COST (AVERAGE) PER TON OF COAL PRODUCED IN ILLINOIS, 1936*

Items of Production Expense	Costs (Average)	
	Strip Mining	Total Commercial and Captive Mines
Mine labor†	$ .47	$ .91
Fuel and power	.09	.07
Other supplies	.26	.24
Salaries and office expense	.02	.02
Taxes	.01	.01
Insurance and depreciation	.18	.09
Royalties	.04	.03
Depletion	.08	.05
Other	.02	.06
Total	$1.17	$1.48
Selling costs	.09	.11
Administrative expenses	.08	.06
Total	$1.34	$1.65

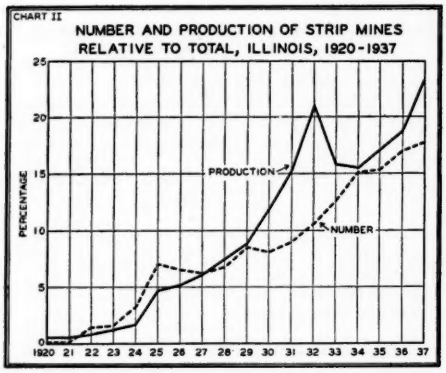
*From data furnished by the National Bituminous Coal Commission.
† Where hand loading was used in deep mines, labor costs per ton averaged $1.33.

Strippable Areas Remaining. In 1925 the State Geological Survey, in *Mining Series Bulletin* 28, stated that the total

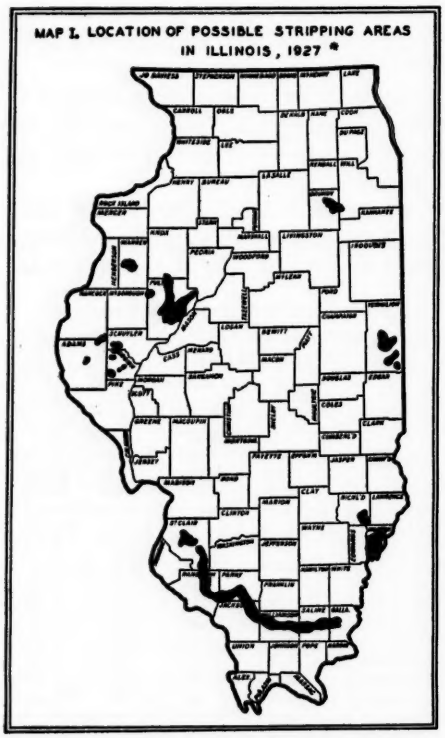
TABLE II. COSTS PER TON OF COAL PRODUCED IN STRIP AND DEEP MINES, ILLINOIS, 1937*
(Last nine months)

Month	Labor Costs†		Total Cost	
	Deep Mines	Strip Mines	Deep Mines	Strip Mines
April	$1.12	$ .65	$2.10	$2.08
May	1.14	.56	2.18	1.72
June	1.08	.51	2.01	1.55
July	1.08	.49	2.00	1.49
August	1.04	.48	1.92	1.46
September	1.03	.42	1.80	1.32
October	1.03	.40	1.77	1.26
November	1.03	.41	1.77	1.30
December	1.02	.42	1.75	1.34
Average	$1.05	$ .46	$1.87	$1.43

* From data furnished by the National Bituminous Coal Commission.
† Labor represents 32% of the cost per ton of producing and selling strip-mined coal, and 56% in the case of deep-mined coal.



available tonnage of strip coal in Illinois had been estimated at 1,407,000,000 tons, occurring in an area of approximately 287 square miles (Map I). According to this, the total acreage underlain would be 183,680, or the equivalent of 1,148 farms of 160 acres each. Later data and increased mechanical possibilities of stripping have enlarged this estimate. The State Geological Survey is now preparing a more up-to-date estimate of strippable resources in Illinois.



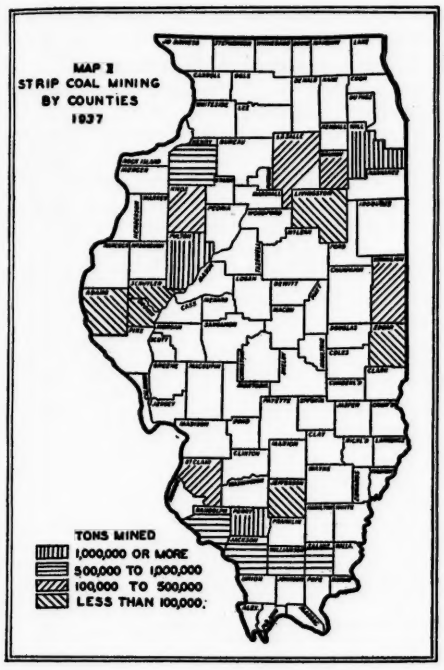
* University of Illinois, Geological Survey and Engineering Experiment Station, *Cooperative Mining Series*, Bulletin 31, p. 6.

Extent of Stripping to Date. In 1924 stripping operations were carried on in six counties. In 1937, 19 counties were included in the *Coal Report* as having had some strip production (Table III and Map II). More than 2,500,000 tons were stripped in each of two counties—Perry and Fulton. Will County produced over 1,000,000 tons, and each of 10 other counties produced over 100,000 tons by stripping. The total acreage stripped in Illinois in 1937 was approximately 2,000 acres. A very rough calculation, based on the total tonnage of

TABLE III. STRIP-MINING OPERATIONS IN ILLINOIS BY COUNTIES, 1937*
(Includes both shipping and local mines)

County	Total Tons Mined	Mined by Stripping		Number of Operating Strip Mines
		Tons	Per Cent	
Grundy...	169,528	101,488	60.0	4
Henry....	728,938	536,564	74.0	1
La Salle...	476,729	231,661	49.0	23
Livingston.	16,153	758	4.7	4
Will.....	1,393,077	1,393,077	100.0	2
Adams....	909	909	100.0	1
Brown....	20,231	19,451	96.0	3
Fulton....	3,334,320	2,683,525	80.0	13
Knox.....	863,175	487,549	56.0	2
Schuyler..	73,673	478	.7	6
Edgar.....	63,575	27,087	43.0	1
Vermilion..	2,274,403	155,935	6.9	10
St. Clair...	2,697,626	453,983	17.0	6
Jackson...	1,720,094	624,594	36.0	2
Perry.....	3,873,355	2,844,531	73.0	4
Randolph..	1,390,113	758,234	55.0	1
Jefferson..	380	380	100.0	5
Saline.....	3,497,557	799,425	23.0	4
Williamson	2,818,989	618,293	22.0	10
19 Counties	25,412,825	11,737,922	46.0	102

* Compiled from figures in *Coal Report* (1937), Department of Mines and Minerals (Illinois).



strip-mined coal produced since 1920, would indicate that more than 15,000 acres have been stripped during the past 20 years (Table IV).

In 1937 open-cut mining was conducted in 19 counties of Illinois. These counties lie, generally speaking, in the Illinois River basin in northern and northwestern Illinois, and in 7 southern Illinois counties from St. Clair around the coal outcrop to Saline County (Map II). Operations are also conducted in the vicinity of Danville in Vermilion County, and in Edgar County along the Indiana state line. According to a statement issued by the Illinois Strip Miners' Association in November, 1938, approximately 68,500 acres of land are owned or controlled in these counties and the industry employs a total of 3,562 men. There are 102 open-cut mines in the state (Table III). Twenty-two of these are of substantial size, their productions ranging from 75,000 to 1,000,000 tons annually. The remaining 80 range upward in size from those turning out a few wagon-loads during the winter months to the 75,000-ton producers.

TABLE IV. LOCATION AND WORKED-OVER ACRES OF STRIP MINES IN ILLINOIS*

County	Acres	County	Acres
Fulton	2,688	Randolph	100
Grundy	540	St. Clair	500
Henry	991	Saline	1,300
Jackson	1,772	Vermilion	1,400
Knox	257	Will	2,040
La Salle	290	Williamson	1,447
Perry	2,410	Total	15,735

* Information obtained from an address given by the secretary of the Illinois Strip Miners' Association.

Agricultural Values Affected. To make a worth-while estimate of the value of agricultural lands stripped to date is not possible without definite information from maps in the county recorders' offices and from local information showing the exact areas which have been stripped in the various counties of the state. Some indication of the agricultural values affected is given in Table V and further information appears in connection with the discussion of complaints against strip mining.

Complaints against Strip Mining

So far no attempt has been made to set down grievances resulting or alleged to result from strip mining. The facts thus far presented indicate the size and importance of the industry in one state, at least, and give some intimation of the type of injury which may result to agricultural areas. On the basis of observation, information obtained from many individuals through correspondence and otherwise, and information contained in

TABLE V. ACREAGE OWNED OR CONTROLLED BY STRIP-MINE COMPANIES, CLASSIFIED BY SOIL TYPES*

(Total Acreage based on Report of Strip Miners' Association, March, 1939)

County‡	Soil Types† or Agricultural Productivity											
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	Total	Average Weighted Ratings
Fulton	2,272	1,082			4,416			6		3,776	11,552	5.57
Grundy	180	743			211	90	3,980	211	13	966	6,394	6.60
Henry	224	2,099			64						2,387	1.99
Jackson						83	365	474	1,274		2,196	8.63
Knox		234		192	1,494					1,197	3,117	6.63
La Salle		282	275		160		71			377	1,165	5.54
Perry						847	653	84	10,006	3,567	15,157	8.98
Randolph						550	166	13	6,259	1,473	8,461	8.94
St. Clair			45	240	1,198	480	111	380		26	2,480	5.66
Saline						198	826	1,491		1,101	3,616	8.27
Vermilion	58	45		154	1,024		19	38		723	2,061	6.57
Will			45			710	3,780		310		4,845	7.34
Williamson						38		288	1,803	433	2,562	9.01
Total	2,734	4,485	365	586	8,567	2,996	9,971	2,985	19,665	13,639	65,993	
Per Cent	4.1	6.8	.6	.9	12.9	4.5	15.1	4.5	29.9	20.7	100.0	

* Total acreages shown by counties are exclusive of lands stripped since March, 1939, and also of lands optioned by the several companies.
† No. 1 represents the most valuable soils as classified by the productivity index ranging from 1–10. This index has been developed by the College of Agriculture, University of Illinois.
‡ Data were available for only 13 counties. However, production of strip coal was negligible in the other 6 counties.

a limited number of published articles, the objections or complaints may be classified under two general headings: those emphasizing detrimental effects which are immediately observable, and those pointing toward effects which have a longer-time significance because of their social and economic effect on community life. Immediately observable detriments include the following:

1. Strip mining destroys agricultural land. With the earth left in huge ridges and with the valuable top soil left at the bottom, the worked areas have little or no agricultural value. Even leveling will not restore its original agricultural value.
2. The natural beauty of the countryside is destroyed.
3. Noxious weeds grow on and spread from the mined areas.
4. Predatory birds and animals which are detrimental to plants, livestock, and poultry find desirable habitats in strip-mined areas.
5. Roads, cemeteries, and schools may be injured, directly or indirectly, by stripping operations.
6. Natural drainage is obstructed when the tile lines are destroyed.
7. The water table may be lowered, causing crops to suffer and wells to go dry during periods of low precipitation.

Under the heading of long-time or ultimate effects may be listed:

1. The assessed value of strip-mined land will eventually be lowered so that local revenues will be curtailed and public institutions will suffer or cease to exist. Eventually this may mean the economic and political disintegration of certain counties.
2. From the standpoint of state and national conservation policy, two valuable and readily usable assets, land and available strip coal, are being rapidly depleted or destroyed without any measurable return to the public, and with future detrimental effect.
3. A huge reclamation task is created for future citizens to finance from public funds.
4. A temporary demand is created for labor, but shifting operations and eventual exhaustion of strippable coal will leave the labor stranded after it has been diverted from agricultural pursuits. At best, an un-

steady demand for labor will exist, and the relief burden will be increased.

5. Through the purchasing or securing of options on land in a particular area, strip-mining companies are able to create abnormal land values and virtually condemn the surrounding farms because, with the prospect of community values declining and schools, roads, and other public assets suffering, the occupants feel that to sell their farms and move is perhaps the most desirable thing to do. In addition, long option periods are sometimes purchased for speculative purposes.

6. Eventually, the companies are often able to purchase the land at reduced prices.

The following statements from farm advisers and other interested people seem significant:

"... We have some school districts that are practically entirely mined. We have others where the districts are cut entirely in two which means the children have to be taken several miles in order to reach the school house.

"We find there is an attitude on the part of the people in these areas to pay very little attention to improvement of roads, buildings or community life because they feel it is a matter of time only until they will move away from the community. The same attitude prevails as far as land is concerned. They naturally feel they should get all they can from the land as quickly as they can. There will be a considerable number of farms not taken by the coal companies that are now under option. In fact it appears to me that evidently the mining companies do not intend, at least for the time being, to work out some of the land."

"... To say just how much valuable farm land has been taken out of production through these practices would be impossible. We can say that it is still being taken out. Furthermore, we readily observe that the owner of the land likes a quick return through royalties and gives little thought to future generations and their problems. There has been no disposition on the part of any of these owners to require a leveling of surface following excavation.

"The strip-mining industry is old enough to create very little sentiment among the residents of the county. I am told that it formerly was a cause of considerable controversy. Most of our citizens present the attitude that it is an inevitable project and that little can be done about it legislatively or otherwise. They favor the stimulation of business it brings to the county."

Obviously, arguments may be used to sustain strip-mining operations as they are now carried on. The value of the coal so far exceeds the value of the land, and future agricultural income and social values are so hard to measure in terms of money that comparisons of present with future values have great weight.[3] Also, by this efficient method of producing coal, prices to the consumer have been lowered, labor has been provided, and local business has been stimulated. From the standpoint of traditional freedom in the alienability and use of property, the companies have a right to purchase and strip as they please. From the standpoint of conservation, the argument is oftentimes effectively presented that we need not concern ourselves about conservation except to make sure an efficient use of the resource is made.[4]

Following out the same approach, it may be said that according to tests which have been made and estimates of total coal reserves in strippable areas, an acre of land is underlain by an average of about 7,500 tons of coal. (A 5-foot bed under an acre would yield 8,000 tons.) During the past 15 years the mine-run price of bituminous coal has

[3] See Charles L. Stewart, "Strategy in Protecting the Public's Interest in Land: with Special Reference to Strip Mining," pp. 312–6 below.

[4] See Furman Rinehart, "Conservation of Natural Resources and Legal Control," 18 *Minnesota Law Review* 168 (1934). At p. 177 Mr. Rinehart says in effect that we must look chiefly to the engineer for conservation. We do not know enough about future developments to be able to say that any particular thing needs to be conserved or expended at any given rate. This being the case, laws and legislation are relatively ineffective. Overproduction of one resource does no harm because it then saves some other resource which it replaces because of lower price—in the end the use of resources is compensatory.

averaged $4.11 per ton. Strip-mined coal has averaged less than this, however, and $2.00 is probably a fair average. Using the above figure for tonnage and figuring 85% recovery, the value of strippable coal per acre is $12,750. This is a large figure when compared with the value of the land for agricultural purposes. Since the advent of government programs calling for restricted agricultural production and for the retirement of submarginal lands, some people would claim that the interest of the government in preserving lands from strip mining conflicts with these policies. Other aspects of this problem are discussed below in connection with coal supply in the event of national emergency (see p. 305 below).

In opposition to these purely economic arguments for unrestricted strip mining it is possible to place a line of reasoning founded on mixed social and economic bases.

According to figures available from the Strip Miners' Association in March, 1939, over 68,000 acres of Illinois farm land were owned or controlled by strip-mine companies. Using the productivity index worked out by the Agricultural Experiment Station, University of Illinois, this land has a weighted rating of 7.2 in a scale ranging from the best (Grade 1) land to the poorest (Grade 10) land (Tables V and VI). This is somewhat below the state average weighted rating of 5.5. In certain counties, however, the area owned and controlled by strip-mine companies averages above the county weighted rating and includes large acreages of the best land in the county (Map III). In Henry County the 2,387 acres reported as owned or controlled by strip-mine companies have a weighted rating of 1.99, in comparison with a county rating of 4.34.

In Grundy County strip-mine companies are paying over 11% of the taxes

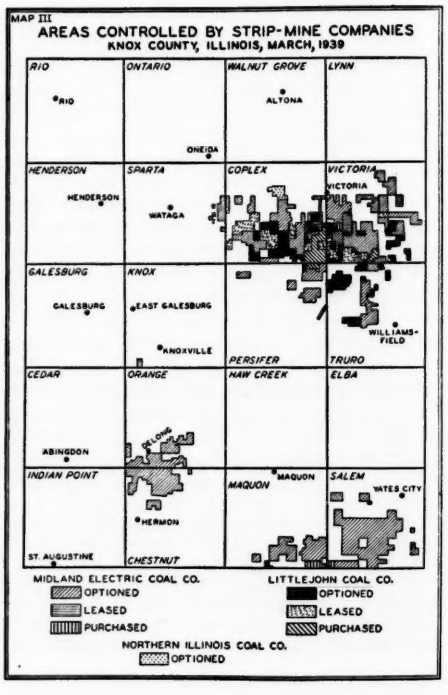
TABLE VI. PER CENT AND ACREAGE OF ILLINOIS FARM LAND ACCORDING TO INDEX OF PRODUCTIVITY*

Grade†	Acreage (1935 Census)	Per Cent
1	2,216,284	7.0
2	3,292,765	10.4
3	4,242,601	13.4
4	2,098,640	6.6
5	5,255,760	16.6
6	2,098,640	6.6
7	2,564,558	8.1
8	3,292,765	10.4
9	1,868,011	5.9
10	4,464,230	14.1
Other (strip mines, gravel pits, water)	284,951	.9
Total.....	31,661,205	100.0

* Agricultural Experiment Station, College of Agriculture, University of Illinois.
† Weighted grade average for state, 5.5.

in 15 school districts. In one district they pay 53.7% (Table VII).

The ultimate effect of having a heavy proportion of taxes paid by corporations which are reasonably certain



to become disinterested owners within a relatively short time after the coal has been removed may be a matter of serious concern to property owners in the various taxing districts affected. Of equal significance is the fact that assessed values will eventually decline when this waste land is revalued according to its fair cash value. At the same time it should be noted that, although they are not required by law to do so, the

TABLE VII. PAYMENT OF TAXES BY STRIP-MINE COMPANIES IN GRUNDY COUNTY

Townships	School District	Total Taxes	Taxes Payable by Coal Companies	Per Cent of Total
Gooselake:	No. 83	$ 1,226.07	$ 11.50	.9
	No. 86	1,020.29	548.92	53.7
	No. 87	91.26	20.44	22.4
	No. 88	774.25	6.14	.8
(Non High School)..	No. 100	986.38	277.55	28.1
		$ 4,098.25	$ 864.55	21.1
Felix:	No. 82	$ 769.42	$ 168.22	21.8
	No. 83	4,064.37	45.68	1.1
	No. 84	971.23	147.00	15.1
	No. 87	281.65	56.33	19.9
(High School)..	No. 98	16,142.41	874.39	5.4
		$22,229.08	$1,291.62	5.8
Saratoga:	No. 56	$ 869.64	$ 121.26	13.9
	No. 57	803.56	135.49	16.8
(High School)..	No. 100	1,771.21	131.32	.7
		$ 3,444.41	$ 388.07	11.2

operating companies in Illinois have been paying taxes voluntarily on original or agricultural values in worked areas for many years.

It should be pointed out also that stripping has materially reduced adjacent property values. The seriousness of the effect on real estate values is shown by the fact that the Federal Land Bank of St. Louis has reduced loan values as much as 35% on farms located within a radius of two or three miles of a strip mine. Since the acreage now optioned by the coal companies is, in some counties, many times as great as the acreage owned by them, the importance of this factor is far greater than is generally recognized. It should be pointed out that complaints of this character have not been widespread on the part of individuals because practically all landowners in these areas are anticipating a chance to sell to the coal companies. Since the average prices paid for land vary from about $150 to $500 per acre, these individuals stand only to gain. Obviously, when the coal companies have worked the most productive areas and decide to abandon them, the full impetus of factors which have long exerted a repressive effect on markets will be realized. Such agencies as the Federal Land Bank, engaged in making real estate loans over periods of 30 and 40 years, are naturally more concerned about the ultimate social and economic effects of strip mining than individuals interested in specific properties.

The present effect upon land values is not generally appreciated, in part because practically all sales in strippable areas are made to the coal companies or to speculators. Since no sales of land in those areas are made for farming purposes, there is no basis for measuring the effects of strip mining on surrounding properties for agricultural use at the present time. The adverse effect upon real estate values is also shown by the fact that landowners who have sold to coal companies seldom if ever purchase other lands located in the same community. Although many of them do purchase another farm, it is interesting to note that they have generally chosen to buy in other communities, where land values are based exclusively on their use for agricultural purposes. There is substantial evidence of the fact that, after a few purchases of land have been made

by the coal companies, the morale of property owners is immediately affected within a radius of several miles. This fact is clearly demonstrated by the reluctance of individuals to maintain or improve properties in areas where lands are owned or controlled by coal companies. Also, public officials are loath to maintain roads, school buildings, and other public improvements in strip-mine areas because of the economic insecurity created by this enterprise.

Although the price of the best land bears a negligible ratio to the value of the coal underlying it, in balancing the values as between agricultural use and strip-mining use a number of other considerations must be weighed, including long-time returns from the land, the deteriorating effect upon social and economic values of the community, opportunities for labor, and many other factors. Conceivably, an area of low productivity may be injured as much by destroying some of these values as would a more physically productive area.

Legal Basis for Government Control in Illinois

State constitutions and statutory enactments in many states recognize a public interest in natural resources. The Illinois Constitution, however, is silent on the subject of conservation and natural resources, and the only governmental policy existing is that represented in the powers and duties given various state agencies. A number of state agencies—the State Geological Survey,[5] the Department of Mining Engineering in the College of Engineering at the University of Illinois,[6] the Department of Mines and Minerals,[7] the State Department of Conservation,[8] the State Planning Commission,[9] and the Board of Natural Resources and Conservation[10]—are concerned with natural resources but primarily only for the purpose of studying them and disseminating information about them. The State Planning Commission alone has power to "formulate plans and make recommendations for the further development of the State's resources which will be helpful to agriculture . . . mining . . . and the conservation of forests, soil . . . and other resources in the State. . . . " To date, however, this Commission has made no study of the strip-mining problem and has given the legislature no information on the subject. Yet it is a well recognized principle of government that the conservation of such resources is a matter of public concern about which only the state is in a position to act. By its very nature, strip mining is a type of activity which appropriate governmental agencies should recognize. The state of Illinois should develop a well-defined policy with respect to this problem. So far no agency of the state has developed sufficient information to do so.

Government Regulation in General

That states do have power to regulate the coal industry, so long as such regulations apply to intrastate matters and are reasonable and otherwise meet the philosophy of the courts with respect to police power and interstate commerce, is not open to serious question.

In *Hammer* v. *Dagenhart*,[11] the Supreme Court said, "The . . . mining of coal is not commerce, nor does the fact that [it is] . . . to be afterwards shipped or used in interstate commerce make its

[5] Act of March 7, 1917; Ill. Rev. Stats. 1937, c. 127, §§58 and 62.
[6] Act of June 8, 1919; Ill. Rev. Stats. 1937, c. 144, §§155–7.
[7] See footnote 6 above at §§45–48.
[8] Act of June 2, 1925; Ill. Rev. Stats. 1937, c. 127, §8.
[9] Ill. Rev. Stats. 1937, c. 127, §§63f–63i.
[10] See footnote 6 above at §§6, 7, and 63.
[11] 247 U. S. 251 (1918).

production a part thereof." In *Coronado Coal Co.* v. *United Mine Workers*[12] the Court added: " . . . and the power of Congress does not extend to its regulation as such." The final pronouncement on the subject came in 1936 when the Supreme Court declared the Bituminous Coal Conservation Act of 1935 (the Guffey Coal Bill) beyond the power of Congress to carry out because the Constitution grants to Congress no general power to regulate for the promotion of the general welfare; and because the power to regulate interstate commerce does not include the power to control the conditions in which coal is produced before it becomes an article of commerce.[13]

Thus, at the present time, a substantial field of legislative regulation of coal mining, including strip mining, still subsists in the states. The power of the state to regulate coal mines is recognized, and all states where coal mining operations are carried on have a more or less extensive set of laws. In Illinois the State Department of Mines and Minerals is charged with the administration of these laws.

Remedial Measures

Many suggestions have been made for the regulation of strip mining. So far, nothing of an effective or constructive nature has been put into operation. At least three states—Iowa, Ohio, and Illinois—have legislation pending at the present time. Some consideration will be given the various ideas which have been advanced.

Government Ownership. Approaching the problem from the standpoint of the conservation of natural resources, the suggestion has been made that public ownership of strippable areas would be desirable, both from the standpoint of conserving the soil and from the standpoint of preserving the national coal supply—particularly that portion of it readily accessible in case of national emergency. If conditions similar to those existing in 1917 were to develop, such a proposal would undoubtedly meet with favor. At that time there was a shortage of coal and the cry from all sides was for extreme care in conserving it. Figures were cited showing that, whereas only one ton of coal per capita was consumed in 1870, six tons were consumed in 1917. Other figures claimed that for the 7½ billion tons of coal which had been produced prior to 1908, 9 billion tons had been wasted. The possibility of another such national emergency may be justification for controlling strip operations in order to have such coal available in time of urgent need, since its supply is limited. The easy accessibility of strip coal and the fact that it can be produced relatively cheaply and with relatively little man power make it especially suitable for emergency use.

Two years ago Governor Earle appointed a State Anthracite Coal Industry Commission to make a study and report concerning the anthracite deposits in Pennsylvania. This committee recommended that the state purchase the reserve deposits, but no action was taken on the recommendation.

It is conceivable that either the state or the Federal Government could purchase strippable deposits of coal and allow the owners to retain the surface rights, or that they could purchase the areas outright and rent the land to farmers under long-term leases. There are objections which some may make,

[12] 259 U. S. 344 (1922). This position was reiterated in *Hume-Sinclair Coal Mining Co. v. Nee et al.*, when the federal district court for the western district of Missouri said that the mining of coal is exclusively within the police power of the states. (12 F. Supp. 801 (1935).)

[13] *Carter v. Carter Coal Co.*, 298 U. S. 238 (1936).

however, even to a well-worked-out plan of this nature. In the first place, government ownership of large areas sometimes interferes with normal social, economic, and political growth and development. In the second place, if the coal were stripped by the government for emergency use, there is a likelihood that the ground would not be leveled, at least not at that time.

There is a great deal of merit, however, in the suggestion that stripped areas be purchased and made over into parks or forests. Short of leveling the land and returning it to some form of agricultural production, this may be the best that can be done with some areas now stripped.

Last spring when Congress considered the bill (S. 572) relating to government purchase or control of certain "strategic war materials," Senator Neely moved to include bituminous coal as such a material. Senator Thomas and others felt that it should not be included, and the amendment failed. If the motion had been restricted to strippable coal and it had been pointed out that government ownership or control of such coal or of certain areas where such coal is readily accessible would have had a double advantage in conserving farm land and giving the government a readily available supply of coal, the argument might have been more forceful.

Compulsory Leveling or Replacement of Soil. Certain strip-mine companies have done a very limited amount of leveling and planting on stripped areas. The State Department of Conservation has cooperated in some of this work. At least one instance exists, in eastern Illinois, where a company agrees to level the land in negotiating contracts with land owners. This is reputed to work satisfactorily, the leveling costing about $50 per acre, a very small amount when compared either with the value of the coal taken out or with future income from the land. In lieu of compulsion or a better arrangement of any kind, this method is strongly recommended to stripping companies.[14]

The essential features of bills introduced in the Ohio, Iowa, and Illinois legislatures requiring the leveling of strip-mined areas are as follows:

(1). The requirement that the surface soil be replaced as nearly as possible in its original position, or that the land be left in "substantially the same condition." Each of these statements is flexible and allows for a varying degree of inability actually to replace the surface soil. Even an unconditional statement to replace the surface soil would probably be interpreted with some degree of flexibility. There is also some question about what is meant by "surface soil."

(2). A provision that only a certain

[14] In this connection a statement in *Cooperative Mining Series Bulletin* 31 (University of Illinois, 1927) is very much in point:

"The chief popular objection to stripping operations is directed against the unsightly and unredeemable piles of spoil that result from open-cut mining. That the land may have been of little value under cultivation is rarely considered. A 5-foot bed of coal has much more immediate value than the surface at even $100 an acre. Yet the destruction of a permanent potential resource represented by the soil for the sake of recovering and exhausting another resource, although it may be of greater immediate value, will always be popularly regarded as economically unsound. There is constant danger of the enactment of legislation against this method of mining coal particularly as the scale of the operations becomes increasingly large. It therefore behooves those interested in such operations to take some thought of the possibility of restoring the worked-over lands to cultivation. That the spoil could be distributed in less topographic confusion seems certain. Before any of the land can be rendered fit for cultivation it must first be restored to some resemblance to the original topographic form. It then becomes the problem of agronomists and botanists to determine the most suitable procedure for restoration of the soil and vegetation. The writer is of the opinion that the consideration of the matter of restoration of lands wasted by the large-scale stripping process cannot be indefinitely delayed."

limited acreage (three to five) can be left not leveled at any one time by any one company; or that the leveling be done "within a reasonable time."

(3). Provision for a penalty in case the law is not complied with. The nature of this penalty is, after all, the heart of the statute, because if the penalty provided is less than the cost of leveling the land, companies will choose to forfeit the amount. The inclusion of a substantial criminal liability has been suggested to obviate this practice.

An additional requirement of some proposed legislation provides that all contracts for removal of coal include a clause agreeing to replace the soil and providing a penalty when this provision is violated. One proposed Illinois bill makes it unlawful for anyone engaged in strip mining to destroy or injure any highway, public cemetery, or school house, unless the contract requires replacement of such property. What people would do about schools, roads, and burying grounds in the interim is not clear.

The effectiveness of this type of legislation will depend upon how successfully strip-mining companies can be made to replace the soil and upon how nearly like the original structure they are able to make it. Simple leveling is probably not a fair compromise between the rights of strip companies and agricultural land and community values.

Delineation of Areas for Stripping. The suggestion has been made that strippable areas should be rated according to the value of the agricultural lands, and that on this basis operations could be prohibited in the better farming communities and allowed in areas of low or submarginal value. It is quite plausible to distinguish between areas which now support no population and provide no public revenue and those which are the most productive and most highly developed socially and economically.

It becomes exceedingly difficult, however, to know where to draw the line when social and human factors begin to enter the picture. Certainly a simple measurement of land values alone is not enough, because, as has been previously remarked, people on poorer lands have other values—the amenities of their home-sites and the community associations they have built up—which are as important as those of people on the best land.

Severance Taxes. A device used by many states to obtain revenue and at the same time (perhaps primarily) to exert a degree of control over a particular business or profession is the occupation tax. Severance taxes are generally regarded as a species of occupation tax, imposed on the business of severing natural resources from the soil. They furnish a means whereby the state can realize on the public interest in natural resources and at the same time maintain a measure of authority over their exhaustion.[15]

[15] Before the severance tax was passed in West Virginia, Governor Cornwell stated in his inaugural address:

"It is a lamentable fact that our natural resources, coal, oil, gas, timber, and limestone are being exhausted at a rapid rate without the state having derived the revenue from those sources which should have been obtained. The man who owns a farm, or a town lot, is constantly improving it and thereby enhancing its value. It becomes more valuable for taxation purposes, every year. Not so with mineral or timber lands. The timber is removed and much of the land thereby and thereafter becomes worthless. The removal of the gas and the oil is for all time. When a coal field is worked out desolation follows, unless it happens that the surface is tillable, and not infrequently the surface of tillable land is destroyed in removing coal. There is, for these reasons, a marked difference in the character of the properties mentioned, a difference which the state should take into consideration in adjusting its tax system, if justice is to be done and if taxes are not to become unduly burdensome to our agricultural interests and to owners of urban property." (Quoted by A. E. Moody in *A Severance Tax for Ohio* (Bedford, O.: The Author, 1931), p. 59.)

The constitutionality of these taxes has been challenged on various grounds, the most frequent being that they are property or ad valorem taxes, and therefore subject to the constitutional requirements of valuation and uniformity. Since they are not uniform except as to the particular class upon which they operate, and since the amount is measured by production or value of product rather than by assessed value of property, they are therefore claimed to be invalid. However, this represents the minority view.

In a note on the constitutionality of severance taxes in 32 *American Law Reports* 827, it is stated:

"According to the weight of authority a tax imposed on persons engaged in severing from the soil natural resources, such as timber, oil, natural gas, ore, or the like, based on the quantity or the value of the product thus severed, is valid. Such a tax is deemed a privilege or occupation tax, a proper exercise of the power to impose such taxes, and not within constitutional requirements relating to the imposition of property taxes."

In *Oliver Iron Mining Co.* v. *Lord*[16] a Minnesota law laying a tax on the mining and removal of ore, based on the value of ore produced and allowing deductions of royalties paid, was held to be an occupation tax. The court said that the regulation of this business was proper, that it was not an attempt to regulate interstate commerce, and that deductions for royalties were not unfair to self-owned and -operated mines.

A case more in point is *Choctaw, O. & G. R. Co.* v. *Harrison*,[17] in which an Oklahoma tax upon coal producers equal to a specified per cent of the gross receipts from the total coal produced " . . . which shall be in addition to the taxes levied and collected upon an ad valorem basis upon . . . mining . . . property and the appurtenances . . . " was held not to be a property tax but an occupation or privilege tax.

On the other hand, in *Producers Oil Co.* v. *Stephens*[18] it was contended that a tax of 1% of the gross product on persons operating oil wells violated the state constitution as to rate of taxation, equality, uniformity, assessment in county where situated, and equalization of values—all on the theory that it was an ad valorem tax. The court met these arguments by saying,

" . . . the tax is not upon the gross products . . . but upon the occupation . . . ; the amount is measured by a percentage of the market value of the gross products. It is within the power of the state to impose an ad valorem tax on the oil-producing property, and an occupation tax for the use of this property in producing oil—this is not double taxation."

In some states the constitution specifically provides that taxes may be imposed on the severance of natural resources. The constitutions of Arkansas and Louisiana are examples. In the latter state, however, a line has been drawn between what the court considers to be natural resources and what it considers not to be. In the case of the latter, the tax has been held invalid.

The Illinois Constitution provides in Article IX, Section 1, that in addition to its power to levy a tax by valuation, the legislature shall have power to tax peddlers and numerous other special classes named in the section " . . . in such manner as it shall from time to time direct

[16] 262 U. S. 172 (1923). Similar opinions were rendered in *Large Oil Co. v. Howard*, 63 Okla. 143; 163 Pac. 537 (1917) and *Mid-Northern Oil Co. v. Walker*, 65 Mont. 414; 211 Pac. 353 (1922).

[17] 235 U. S. 292 (1914).

[18] 44 Tex Civ. App. 327; 99 S.W. 157 (1906). See also *Floyd v. Miller Lumber Co.* (32 A.L.R. 811 at 826) in which the opposite point of view was ably stated by Mr. Justice Wood in a dissenting opinion: "It follows that a tax on the attributes of ownership, or on the right to make the only use of property for which it is of any value, is a tax on the property itself."

by general law, uniform as to the class upon which it operates." Article IX, Section 2 states, "The specification of the objects and subjects of taxation shall not deprive the general assembly of the power to require other subjects or objects to be taxed in such manner as may be consistent with the principles of taxation fixed in this constitution."

The decisions of the Illinois Supreme Court which would seem most in point in the interpretation of these sections are *Reif* v. *Barrett*,[19] upholding the Illinois occupational excise or sales tax and stating that an occupation tax is a tax levied either for the purpose of regulating or controlling a given business or occupation or for the sole purpose of raising revenue; and *McGrath* v. *City of Chicago*,[20] upholding a classification of vans on the basis of floor space, for purposes of levying an occupation tax. On the basis of the Illinois Constitution and of these decisions, it would be reasonable to assume that an equitable severance tax, set at a certain amount per ton and measured by total production, would be valid.

In view of the distinctions which have been drawn between property and occupation taxes, the fact that the courts of some states, including Illinois, have declared mineral leases to be real property and subject to taxation as such, should not affect the power of the state to impose an occupation or severance tax on the production of minerals.

If deemed desirable, such a law could be coordinate with provisions for replacing the land. The proposed Ohio law, referred to earlier, provides for a severance tax of 25 cents per ton and provides that the revenue shall be used, when necessary, to enable the supervisors to level the land. In this case it should be made certain that the tax income is sufficient to allow the supervisors to do the job in case the company fails to do it.

A combination of severance taxes, land classification, and leveling requirements, worked out clearly in statutory form and providing that state funds accruing from severance taxes be used to insure restoration of the land and to compensate for loss of values or taxes in strip areas, deserves serious consideration (Table VIII).

Another plan of taxation would provide that on lands stripped the total estimated assessment of the next several decades be paid by the company in a lump sum and held in escrow for use of the local government. This plan has obvious shortcomings, chief of which is the inability to estimate future values.

Zoning. The Illinois County Zoning or Regional Planning Act of 1935 provides that,

> "For the purpose of promoting the public health, safety, morals, comfort, and general welfare, conserving the values of property throughout the county . . . etc. . . . the board of supervisors or board of county commissioners . . . shall have power to regulate and restrict the location and use of buildings, structures, and land for trade, industry, residence, and other uses . . . ; to divide the entire county outside the limits of cities, villages, and incorporated towns into different classes, according to the use of land and buildings . . "[21]

The limitations on the powers of the board, other than those stated, are that they cannot disturb the present use of property (retroactive ordinances) and they cannot impose regulations on land used or to be used for agricultural purposes.

A careful reading of this act indicates that a group of interested county people may be able, through concerted effort

[19] 355 Ill. 104; 188 N.E. 889 (1934).
[20] 309 Ill. 515; 141 N.E. 299 (1923).
[21] Act of June 28, 1935; Ill. Rev. Stats. 1937, c. 34, §152i.

TABLE VIII. OPERATION OF SEVERANCE TAXES IN CERTAIN STATES*

State	Nature and Amount of Tax on Coal	Total Revenue Collected (All Natural Resources)	Use of Revenue
Alabama.....	2½ cents per ton	$620,311.83 (1926)	For state educational trust fund.
Arkansas.....	1 cent per ton	Average $612,250.00–1,838,952.00 from 1923–1928	¾ to state common school fund; ¼ to county for schools and roads.
Louisiana.....	5 cents per ton	Average $1,478,929.33 annually from 1925–1928	½ to state severance tax fund; ½ to local parish for schools and local funds.
Montana.....	5 cents per ton	Average $400,000 annually from 1925–1928	
(Suggested for Illinois)....	10 cents per ton on strip-mined coal	Would have been about $1,173,792 in 1937	For reclamation and leveling work in strip area; compensation for long tax-base, land values, etc., in strip areas.

* Taken from Moody, *op. cit.*

and acting under this law, to zone against the encroachment of strip-mining companies. The procedure for getting ordinances passed is rather involved, and the act would have no application to areas already being stripped, but its possibilities are strongly urged for those counties interested in preventing strip mining.

In this connection the enactment of land-use ordinances under provisions of the Illinois Soil Conservation Districts Act has been proposed. In the long run this may offer greater possibilities than the zoning act, especially if the latter is held to be so narrow as not to include the suggested action. The speed with which either act could be put into operation would probably depend more upon the interest of the people than upon the provisions of the respective laws.

Equitable Relief. All legislative or private endeavor failing, there yet remains one possibility of relief from the damages resulting from strip mining—a suit in equity to enjoin operation of the mines. This would have a possibility of success only if a substantial number of farmers joined in the suit and only if the injuries were of such an extent as to affect the whole community, causing the court to view the outcome of the controversy as one depending upon a "balancing of the equities."

A well-known line of cases may be cited in which the primary duty of the court was to balance conveniences and economic interests between litigants. In *Hennessy* v. *Carmony*,[22] the court enjoined a large dye works from operating because its machines shook the complainant's house. This is generally cited as an illustration of a rigid application of the law and as a case where the court failed to "balance the equities." If this theory were carried to its logical conclusion, any farmer able to show an appreciable injury from a strip-mine company could enjoin its operation. Such a result would be very unlikely to occur.

The desirable kind of decision, and the one which would seem equitable if an injunction were sought against a strip-mine company, is represented in *Anderson* v. *American Smelting and Refining Co.*[23] In that case a group of farmers united in a suit to enjoin the smelting company from producing sulphur

[22] 50 N.J. Eq. 616 (1892).

[23] 265 Fed. 928 (1919).

dioxide fumes, claimed to be irritating and injurious to residents of the community. Facts were presented on both sides showing the extent of interests involved, etc. In the end the court rendered a decree allowing the company to continue its operations, provided that within a definite period it perfect a device for removing the obnoxious fumes. Subsequent information shows that such a device was found and that, as a matter of fact, such companies were able to convert these fumes into valuable by-products.

The suggestion which arises out of this is that a decree, if issued against a strip-mining company, might well stay an injunction, provided that suitable means of replacing the soil were found. This, of course, hinges upon a doubtful issue—namely, whether or not the equities of the affected farm community and its individuals could be adequately demonstrated to a court.

In a few cases, individual relief has been allowed for specific injuries. In *U. S. Coal Co.* v. *Wayne Coal Co.*,[24] the court held that the plaintiff could enjoin stripping operations which threatened his lateral support. In *Jackson Hill Coal and Coke Co.* v. *Bales*,[25] the court held that damages to a well could not be considered as an independent item of damage, but could be considered as part of the injury to the land.

Conclusions

For the most part, any conclusions which might have been stated here have already been reached and expressed. Briefly stated, however, it may be said that there are four lines of remedial action.

First, the state may adopt an effective conservation policy containing adequate measures for controlling strippable coal, or may enact legislation requiring replacement of the soil before the stripped areas become large, thus causing a minimum of interference with the use of farm land. Severance taxes may be a part of either plan.

Second, the Federal Government may inititate a purchase program in strippable areas, or cooperate with the state in reforestation or other conservation programs on areas now stripped.

Third, local citizens may make use of zoning laws or soil conservation district land-use regulations to prevent the spread of strip mining.

Fourth, individuals may protect themselves to some extent by contracts calling for replacement of the soil and by insisting upon their legal rights when they are challenged.

At the present time there is a lack of real factual data upon which to base legislation, especially severance tax laws, penalties, and bonds for performance. Some additional facts which should be obtained are:

1. Data on the cost of replacing strip-mined soil.
2. Data on the implications of strip mining with respect to labor.
3. Assessed values, tax delinquency, and estimated income from farm land adjoining strip mines and affected by them.
4. More definite information on the social, economic, and political implications of increasingly large strip areas.

It would seem that some public agency charged with the responsibility of developing a conservation policy for the state should be interested in procuring the necessary data.

[24] 12 Ohio App. 1 (1918).

[25] 183 Ind. 276; 108 N.E. 962 (1915).

Strategy in Protecting the Public's Interest in Land:
with Special Reference to Strip Mining

By CHARLES L. STEWART*

PUBLIC action relative to strip mining may be warranted in certain situations for reasons that do not apply so pointedly to some other types of mineral development. Where agricultural lands of various classes are suited to strip mining, with possible consequences to agricultural productive capacity of the stripped areas and to agricultural and home values of these areas, as well as of areas adjoining them, public action may have local private and community support. Strip mining involves two natural resources—the land in its agricultural use and the mineral which underlies it. Here is a problem in the proper balance to be drawn between the long- and the short-run points of view—in other words, the balance between present and future incomes. In the solution of this conflict of uses and points of view, the public has a very definite stake, and protection of the public interest requires strategic steps and a comprehensive program for directing strip-mining activities in state and nation. It seems desirable, therefore, to examine the problem from the long- and short-range angles to see how the question of present versus future incomes impinges on public policy and what suggestions it offers for formulation of that policy.

The long-time, farm-home value of land is not appreciated in the United States as it is in the countries of Europe. A family near Florence, Italy, has operated the same farm on a kind of rental basis for over a thousand years. It is conceivable that at intervals, when interest rates were high enough or other conditions were such as to predispose the owner to sell land, this family could have purchased the title to all future incomes from the farm *beyond 25 years after the date of purchase* for a fifth or smaller fraction of the price at which it could have purchased the title to all future incomes, *including those of the first 25 years*. One is compelled to note how much more expensive it is to buy the incomes of the first quarter-century than those of the second or any later period.

If one were granted 25 years' use of income from a property worth $200, when the rate of discount or capitalization is 5% per annum, he is granted $140.94, or 70.4% of the full value (Table I). By being granted the use of incomes for the years 26 to 50, $41.62 or 20.8% more is added. Use of the incomes for the years 51 to 75 adds $12.29 or 6.1%; and for the years 76 to 100, $3.63 or 1.8%. At 6% discount, the value of the property would be less on a strict capitalization basis, but the percentage of this total represented by the present worth of the incomes of the four quarter-centuries would be 76.7%, 17.9%, 4.1%, and 1.0%, respectively. Expressed another way, the value of the incomes for years 1 to 25 is 2.3 times that of the incomes for years 26 to infinity, if 5% is used, or 3.3 times, if 6% is used.

In the case of a family residing on a tract sought for acquisition in a state or national forest area, when its survivors see themselves within about 25 years of the end of the time for which they may

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have need for the tract for their own use, arrangements might be made for the government to take title to the property effective shortly after the decease of the surviving spouse. If down payment in full is not desired, the balance could be used to buy an annuity for the lifetime of the individual and surviving mate. The government could thus obtain title in the next generation (possibly earlier) for a fraction of what it would cost if immediate delivery of title were required. Furthermore, some elderly couples, believing that they can keep their expenses from outrunning even a meager income, if allowed to remain where they know how to make ends meet, can be maintained at little or no expense to the public in the meantime.

This is stated, not so much as a suggestion to branches of federal and state governments buying land where there is no question of its being covered with artificial lakes or subjected to other immediate marked changes in condition, but as a means of making clear a broader principle.

To the ordinary owner, the present worth of the annual incomes of the next 25 years is four to eight times the present worth of all incomes thereafter. To a government that gets itself into as much hurry to use a tract of land in a specific way as individual owners might be, the same is true. A government can be patient, however, with respect to many acquisitions of land. Where it can be patient and foresighted, it can use strategy to the great saving of the public. The impatience of individuals to thrust their favorite way of using land ahead of other ways can be made to serve the interests of the public treasury. An individual's prospective span of use of a property by heirs of himself and his spouse must be added, in some cases, to the period of his own direct use. As education expands its service, as social insurance more universally supplements insurance carried through other channels, and as certain other changes take place, dependence upon real estate for old age and for child support is less marked. This appears to be a characteristic of the last decade. This means that, although income from use of property throughout the life expectancy of owner and spouse is important to them, they have less motive to hold out vigorously against a buyer outside the family who would take over title at their death.

The present worth of net incomes of

TABLE I. PROPORTION OF THE PRESENT WORTH OF ALL FUTURE INCOMES INCLUDED IN THE PRESENT WORTH OF (A) INCOMES FOR SPECIFIED PERIODS IN THE IMMEDIATE FUTURE AND (B) INCOMES FOR ALL SUBSEQUENT YEARS*

Period of Years	Annual Compound Discount at							
	4½%		5%		5½%		6%	
	A	B	A	B	A	B	A	B
20	58.5	41.5	62.3	37.7	65.7	34.3	68.8	31.2
25	66.7	33.3	70.4	29.6	73.8	26.2	76.7	23.3
30	73.3	26.7	76.8	23.2	79.9	20.1	82.6	17.4
35	78.6	21.4	81.8	18.2	84.6	15.4	87.0	13.0
40	82.8	17.2	85.7	14.3	88.2	11.8	90.3	9.4
45	86.2	13.8	88.8	11.2	91.0	9.0	92.7	7.3
50	88.9	11.1	91.2	8.8	93.1	6.9	94.6	5.4
75	96.3	3.7	97.4	2.6	98.2	1.8	98.7	1.3
100	98.8	1.2	99.2	0.8	99.5	0.5	99.7	0.3
Perpetuity	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0

* Based on standard tables.

the first 20 or 30 years may thus be discounted by an owner at a lower rate (e.g., 4%) than that of net incomes thereafter (e.g., 6 or 8%). This may be one explanation why the reported valuations of farm real estate are lower for each $100 of gross product than was the case for at least a decade prior to 1934 or thereabouts. If, then, incomes of the distant future are of less significance to the owner than those of his life-expectancy term, a patient buyer can now get increased concessions to reward willingness to take title 20 or 30 years in the future.

It is probable that a corporation, such as a foundation for research, that did not need to organize its services until 1965, 1990, or 2040, could buy title now to 4, 14, or 55 times as much land for delivery at those dates as for immediate delivery. Certainly, only corporations having clear public approval for doing so or the government itself in pursuance of approved public policy should be permitted to purchase real estate interests that would mature far in the future.

Deferred title-taking to land has one grave hazard. The resources, whether subsurface minerals or ordinary fertility elements, may not be present when title is taken over as when contract for deferred purchase is made. In some cases, this might result in fraud upon the public or other corporation making the purchase. The contract should plainly provide for inspections at protective intervals and for claims against sellers or bondsmen if exploitation passes a point of reasonable tolerance. Likewise, increase in soil fertility should be rewarded under a special clause in the contract, possibly based upon comparison of physical yields, over a period of about three years before title passes, with those of some other earlier period, at least 10 years before expiration of the contract.

Compensation for exhaustion of mineral resources on an area under contract is a problem of a different order. Take an example from areas where open-pit or strip-mine coal is produced. A research corporation buying endowment lands now for possession in 1975 might make forward calculations for 1,000 years, as the Florentine family in the 930's might wisely have done. Its computations would have to be in terms of net rental incomes. Although a government, as investor, would likewise compute on the basis of *net income*, in addition, as conservator of nutritional and raw material interests, it would be concerned with the *gross production* of the land, since the latter is the basic factor in providing subsistence and employing its continuing generations of people.

Compare the millenial interest of a governmental or research corporation with the passing concern of a strip-mining corporation in a section of midwestern farm land. The strip-mine corporation would have motives to buy title as cheaply as possible, remove both the overburden and the coal as cheaply as possible, and, as cheaply as possible, meet contractual and other legal demands for restoring something of the former topography to the land piled with spoil. For $100 an acre it might acquire title to the land. It would be taking advantage of the owner's willingness to count the present worth of the prospective net incomes from farming after 25 years as being so small compared with that of incomes of the first 25 years as to be almost negligible, a point of view more consistent for individuals than for society. The strip-mine corporation in less than a year can extract the coal, do a certain amount of restoring, and move on to other land. Its capacity to restore the land so that prospective net incomes from subsequent farming use will soon

be even 1/10 of what they were before is to be doubted. Suppose it could sell the land for $10 an acre after making all the restoration which the contract, the law, and the resale market for the land would require. For $90 an acre the strip-mine corporation has had use of the land for a few months and has shut off 90% of future income from farming uses for centuries to come. By comparison with what the same land would mean as endowment property in the hands of a research corporation, the strip-mine corporation has cut down to 10% the net income during at least the first century and probably to nearly as small a figure in the other nine centuries. From the standpoint of the government, there is the additional fact that gross farm production from such land would be restricted in about the same proportion as the net income, except that costs of production would doubtless be high for each dollar of net income wrung from such land for generations after the exploitation. If it were known that the coal would be less valuable or less profitably mined in the next quarter-century than in this one, some warrant for early exploitation would be afforded, but the reverse would seem to apply to fuel minerals near the surface.

The average value of farm land in corn belt states may be taken as 6 times the gross product for an average year. The gross product would equal the value 16 or 17 times a century and 160 or 170 times in 1,000 years. The net product would equal the value once in about 20 years, or 5 times in a century, and 50 times in a millennium. Strip-mine coal would need to have many times the value per ton of shaft-mine coal in order to warrant the public in preferring to have strippable land go through that form of exploitation rather than remain so that it could be kept in undiminished agricultural use.

A 1,000-year corporation authorized to own endowment lands, or a state or federal agency, if it would buy title to strippable farm land as of 1975, for example, might outcompete strip-mine corporations in the attractiveness of the bids which could be made to present owners. By contract, the coal could be kept in the ground where it would be available for sale during a subsequent quarter-century, or before in the event of a national emergency adjudged sufficiently grave to warrant altering the gross and net agricultural productivity of the land. Where the coal is overlain by land having little agricultural value, and the land is capable of being easily converted to some other important permanent use, the public interest might be consistent with earlier exploitation.

If strip-mine companies were to begin bidding more than 5 to 10% above the market value of the land for agricultural or other uses apart from the coal, a vigorous public policy might have to be used. A premium system for non-production of strip-mine coal during the period preceding 1975, for example, could be handled on a lump-sum basis or on an annual-payment basis. A federal benefit payment for non-exploitation of strippable land selected for its usability in a possible national emergency would certainly not need to exceed the usual rent for farming purposes. A lump-sum settlement to include a covenant running with the land against non-stripping to 1975 could be expected not to exceed the difference between what owners could get for their land now from a strip-mine company and what they could now get for it in the regular farm land market. It would be much less in most cases, and for several reasons. For one thing, strip-mine operators are not ready for activity on all strippable land. Again, farmers

who have not already reached the point of selling would rather not have to make a change. Finally, abusive use of even a part of the land in a community is not preferred by most members of the local farming population.

A policy of purchase for deferred occupancy of land that is clearly desirable for a late twentieth century or twenty-first century coal reserve can be united with a policy of purchase of non-stripping covenants from present owners to bridge the gap until the selected date for occupancy. The plan should begin with first-preference reserve land, grounds for preference including not only favorable location with reference to probable needs in military or other emergencies, but also the possibility of continuing high-grade and even medium-grade farm land relatively free from strip-mine interruption. In respect to land not now clearly suited to inclusion under first preference, the long-time interests of the public and the owners might be given safeguards less far-reaching. Whether military or non-military considerations dominate, national interests should be included along with those of the states. If a single state were to force practically all production of the coal produced in it into deep-pit mines, it might throw some of its coal-supply business to strip mines in adjoining states. National policies, or better, combined national and state policies are needed.

Northern States Power Company (Wisconsin) Completes a Program of Recapitalization

By WILLIAM H. EVANS*

THE Northern States Power Company (Wisconsin) completed the final step in the revamping of its capital structure when the $17,500,000 issue of first mortgage 3½% bonds, due March 1, 1964, was underwritten and offered to the public in March, 1939 at a price of 106 (net cost to company of 3.32%).

This company's results are indicative of what can be done in the way of capital reorganization by public utilities. The incentives and motives for changing a particularly bad capitalization in 1937 to a more normal and conservative one in 1939 are numerous. Several of these factors, without indication as to which were the most important, are listed below:

1. Several of the outstanding bond issues were approaching maturity.
2. Favorable interest rates were available for long-term financing.
3. A new management desired to set up a favorable capital structure.
4. State and federal regulatory commissions had taken action in regard to financial relationships involving the Northern States Power Co. of Wisconsin and its affiliated corporations.

The capitalization of the company at three separate stages in the program is illustrated in Table I. Column A shows the capitalization just before the first step (elimination of the advances) was taken. Column B indicates the effect of the elimination of advances. Column C shows the capital structure after the second step (refunding of the old bond issue) was completed. The changes in reserves and surplus are also indicated in Table I. Table II contains a summary of the income account, interest and amortization expenses, preferred-stock dividend requirements, and the amount available for common dividends for the years 1937, 1938, and a projected 1939 estimate. Comparative financial ratios are shown at the bottom of Table II. These ratios are based on the data in Tables I and II.

Significant results of this program of recapitalization are summarized as follows:

1. Savings in interest and amortization charges in the first year after refunding are estimated to be $1,228,000—60% less than in 1937. The new bonds are currently quoted at 111.
2. The amount of preferred stock outstanding was reduced from 50,000 to 5,427 shares. The dividend rate on the preferred stock was reduced from 7% to 5%. Preferred dividend requirements were about 90% less as a result of the above changes. All arrears on preferred stock were paid up. The preferred stock is currently quoted at 111.
3. The depreciation reserve was increased a net amount of $4,500,000 between December 31, 1937 and March 31, 1939 or approximately 7 times.
4. A reserve has been set up ($4,980,000) to absorb any decreases in plant values as a result of valuations being made or by compliance with the new classification of accounts.
5. Capital stock and surplus after the change represented 40% of the total capitalization as compared with 20% as of December 31, 1937. The proportion of fixed-interest-bearing debt has been reduced from 77% to 37% of total capitalization.
6. The return earned on common stock equity increased from a negative return in 1937 to 6.5% in 1938, and 7.1%

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for the 12 months ending March 31, 1939. Bond interest was earned 3.3 times for the 12 months' period ending March 31, 1939.

Description of the Method of Recapitalization

The 25,000 shares of common stock (par value $2,500,000) of the Northern States Power Co. (Wisconsin) outstanding on December 31, 1937 were owned by the Northern States Power Co. (Delaware). The Delaware Corporation also owned 44,472 shares (par value $4,447,200) of preferred stock of the Wisconsin Corporation. Dividends were $1,691,750 in arrears on the preferred stock as of December 31, 1937. The Northern States

TABLE I. NORTHERN STATES POWER COMPANY (WIS.): COMPARATIVE STATEMENT OF SOURCE OF CAPITAL BEFORE AND AFTER CHANGES IN THE CAPITAL STRUCTURE[a]

Source of Capital[b]	Amount Outstanding at December 31, 1937 (A)	December 31, 1938 (B)	March 31, 1939 (C)
Funded Debt:			
Serial interest notes[c]	$ —	$ —	$ 182,903
1st & ref. mtge. 5s of 1944	9,438,000	9,438,000	—
1st & ref. mtge. 8s of 1944[d]	1,111,000	1,111,000	—
General and refunding			
Series A, 7s of 1947	3,096,000	3,096,000	—
Series B, 5s of 1947	450,000	450,000	—
General mtge. 5½s of 1950	1,640,000	1,640,000	—
1st mtge. 3½s of 1964	—	—	17,500,000
Total Funded Debt	$15,735,000	$15,735,000	$17,682,903
Less—Unamortized discount and expense	990,653[e]	288,831	700,340
Net Funded Debt	$14,744,347	$15,446,169	$16,982,563
Advances from Northern States Power Co. (Minn.):			
Open account	$11,124,931	$ —	$ —
Interest accrued	5,862,900	—	—
Total Due Parent Corporation	$16,987,831	$ —	$ —
Capital Stock:			
Common, $100 par value	$ 2,500,000	$14,947,200	$17,479,900
Preferred, 7%, $100 par value[f]	5,000,000	542,700	542,700
Total Capital Stock	$ 7,500,000	$15,489,900	$18,022,600
Less capital stock expense	305,416	352,980	354,465
Net Capital Stock Equity	$ 7,194,584	$15,136,920	$17,668,135
Surplus	$ 1,061,652	$ 41,715	$ 203,035
Reserves and Contributions	$ 1,356,511	$11,120,882	$10,363,486
Total	$41,344,925	$41,745,686	$45,217,219

[a] Data obtained from the Prospectus, dated March 22, 1939, and from the company's annual and monthly reports to the Public Service Commission of Wisconsin.
[b] Excluding short-term notes, accounts payable, and other items classified as current liabilities.
[c] These notes were not shown as a liability by the company previous to March 9, 1939. The notes were issued to accompany $1,111,000 of 1st and ref. 5s of 1944 in order to increase the rate of interest from 5% to 8%.
[d] These bonds are the same as the 1st and ref. 5s of 1944, listed above, but were accompanied by the additional interest notes described in footnote c.
[e] The reported amount of debt discount and expense ($130,528) has been adjusted to include $860,125 of unamortized debt discount and expense included in the fixed capital accounts.
[f] The dividend rate was changed from 7% to 5% as of January 1, 1939 (authorized by Commission order 2-SB-116, decided December 19, 1938).

TABLE II. NORTHERN STATES POWER COMPANY (WIS.): COMPARATIVE INCOME ACCOUNT[a]

Item	12 Months Ending December 31, 1937 (A)	December 31, 1938 (B)	March 31, 1939 (C)
Total Operating Revenues[b]	$5,725,427	$6,112,028	$6,280,380
Total Operating Expenses	$2,635,592	$2,772,221	$2,804,782
Depreciation (retirement) expenses	394,027	600,000	668,080
Taxes	731,089	994,871	1,017,732
Total Revenue Deductions	$3,760,708	$4,367,092	$4,490,594
Utility operating income	$1,964,718	$1,744,936	$1,789,786
Non-operating income (net)	312,813	262,277	245,982
Gross Income	$2,277,531	$2,007,213	$2,035,768
Income Deductions:			
Interest on long-term debt[c]	$ 897,745	$ 900,361	$ 612,500[f]
Amortized debt discount and expense	16,765	49,590	93,492[f]
Interest on advances	1,019,270	—	—
Other interest expense	2,481	4,073	4,907
Miscellaneous deductions	39,628	40,641	40,899
Total Income Deductions	$1,975,889	$ 994,665	$ 751,798
Net Income	$ 301,642	$1,012,548	$1,283,970
Preferred Dividend Requirements[d]	350,000	37,989[e]	27,135[f]
Balance Available for Common Dividends and Surplus	$ (48,358)	$ 974,559	$1,256,835
Ratios:			
Times bond interest earned	2.54	2.23	3.33
Times total charges earned[g]	1.15	2.02	2.71
Times total charges and preferred dividend requirements earned	.98	1.94	2.61
Annual cost of long-term debt[h]	6.09%	6.15%	4.16%
Return on common stock equity[i]	none	6.52%	7.13%

Data obtained from the Prospectus, dated March 22, 1939, and from the company's annual and monthly reports to the Public Service Commission of Wisconsin.

[b] Includes rent from the lease of utility plant.

[c] Includes taxes assumed on bond interest.

[d] No preferred dividends were paid in 1937. Preferred dividends were $1,691,750 in arrears as of December 31, 1937. There were no arrearages as of December 31, 1938 or March 31, 1939 (see note e). Requirements are based on the amount of preferred stock outstanding as of December 31, 1937 and 1938 and March 31, 1939.

[e] The regular dividend on the 5,427 shares held publicly, plus the arrearages amounting to $41.667 per share (or $226,125), was paid in 1938. The amount shown here represents the 1938 dividend only.

[f] The interest and amortization charges shown are on the basis of the new capitalization. Preferred dividend requirements are based on the new 5% dividend rate.

[g] Gross income divided by total income deductions.

[h] Interest and amortization on bonds and advances divided by the net amount of bonds and advances at the end of the year and expressed as a percentage.

[i] Balance available after interest and preferred dividend requirements divided by the net amount of common stock and surplus and expressed as a percentage.

Power Co. (Wisconsin) recorded $16,987,831 in the form of advances due to the Northern States Power Co. (Minnesota) at the end of 1937. The Minnesota Company and the Wisconsin Company were subsidiaries of the Northern States Power Co. (Delaware). The Minnesota Company, in addition to the advances, owned $2,532,700 of the Wisconsin Company's bonds. The book value of the securities described above are summarized as follows:

Type of Security	Securities of the Wisconsin Co. Owned as of December 31, 1937	
	Northern States Power Co. (Del.)	Northern States Power Co. (Minn.)
Bonds	—	$ 2,532,700
Advances	—	16,987,831
Preferred stock	$4,447,200	—
Common stock	2,500,000	—
Total	$6,947,200	$19,520,531

Securities of the Wisconsin Company held by the public consisted of $13,202,300 principal amount or 84% of the bonds and $552,800 par value or 12% of the preferred stock. The coupon rates of the bonds varied from 5% to 8% per annum (see Table I) and the preferred stock dividend rate was 7% per year.

The first step in changing the capital structure was to retire the advances. Several proposals were made to the Wisconsin Commission and the Securities and Exchange Commission. On May 6, 1938 approval was obtained of an offer by the Northern States Power Co. (Minnesota) to cancel $8,980,000 of the advances and to accept $8,000,000 par value of the Wisconsin Company's common stock for the balance of the advances.[1] The $8,980,000 of capital surplus created by this transaction was transferred: $4,000,000 to depreciation reserve and $4,980,000 to a reserve for adjustment of book cost of property and investments. This transaction resulted in an annual saving in interest charges of approximately $1,000,000. The depreciation reserve balance increased from $684,706 at the end of 1937 to $4,999,679 as of December 31, 1938, or approximately 7 times.[2]

The second step consisted of retiring the preferred stock held by the parent corporation, reducing the dividend rate from 7% to 5% per year, and retiring the old bond issues. A secondary objective was consolidation of the property of the Chippewa Power Co. with its parent company, the Northern States Power Co. (Wisconsin). The Wisconsin Company, after obtaining approval of the Wisconsin Commission (see ¶5, p. 322, below) and the Securities and Exchange Commission (see ¶ 6, p. 323 below), issued 44,472 shares of common stock to the Delaware Company in exchange for a like amount of preferred stock. The Delaware Company waived its claim on approximately $1,853,000 of accumulated preferred dividends.[3] An additional 25,327 shares of common stock were issued to the Minnesota Company in exchange for $2,532,700 of bonds of the Wisconsin Company. The result of this second series of transactions was to increase the number of shares of Northern States Power Co. (Wisconsin) common stock from 25,000 to 174,799. The various issues are summarized below:

Purpose of Issue	Date Authorized	Shares of Common Stock Held by:	
		Northern States Power Co. (Del.)	Northern States Power Co. (Minn.)
Original issue	Various	25,000	—
To retire advances	5- 5-38	—	80,000
To retire preferred stock	12-19-38	44,472	—
To retire bonds	3- 9-39	—	25,327
Total		69,472	105,327

The public sale of the $17,500,000 issue of 3½% bonds of 1964 in March, 1939 at 106 provided the necessary funds to call in the remaining old bonds.[4]

The net effect of this final step on the capitalization and income accounts is

[1] See ¶'s 3 and 6, pp. 322 and 323 below.

[2] Note comment of the Wisconsin Commission in regard to past depreciation practices in ¶2, p. 322 below.

[3] All arrearages on preferred stock held by the public were paid during 1938.

[4] See ¶'s 5 and 7, pp. 322 and 323 below.

shown in Column C of Tables I and II. The estimated annual saving in bond interest is $287,500. The disposition of the net proceeds from the sale of these bonds is summarized below:

To pay principal and premium on bonds of the company held by the public...	$13,833,937
To pay principal and premium on bonds of the Chippewa Power Co.....	1,771,120
Additional funds for construction and extensions, including the proposed La Crosse Steam Plant.....	2,419,943
	$18,025,000

Comparison of the Cost of New Bond Debt with Costs for Other Utilities

Several Wisconsin utilities have refunded their bonded debts in recent years. Interest rates have varied during this period and the financial position of the different utilities at time of refunding was not strictly comparable in every case. The history of the costs of new bond capital for recent issues by Wisconsin utilities are compared in Table III. The ratio of funded debt (after refinancing) to net property and plant and the number of times the new interest charges were earned have been calculated to indicate the relative credit of the various utilities. The date of each issue is also indicated.

The proportion of the Northern States Power Company's funded debt to net property and plant was about average for the group. The "times interest earned ratio" was very favorable (3.33 times). The net cost to the company of the new debt capital (3.32%) was the lowest in the table. The net cost figure was slightly less than the recent $1,000,000 issue of the Madison Gas and Electric Company's 1st mortgage 4s of 1960 which cost the latter company 3.39% (see footnote e, Table III). The Madison Gas and Electric Company had a smaller proportion of funded debt outstanding and a more favorable "times interest earned" ratio than the Northern States Power Company (Wisconsin). The comparison in Table III reflects the trend in the money market more than the investor's appraisal of the relative credit positions of the individual com-

TABLE III. HISTORY OF THE COST OF NEW BOND CAPITAL, SELECTED WISCONSIN UTILITIES

Name of Company	Description	Par Amount of Issue	Date of Issue	Net Cost to Company[a]	Per Cent Funded Debt to Net Property and Plant[b]	Times Interest Earned[c]
Northern States Power Co.....	1st. Mtge. 3¼s of 1964	$ 17,500,000	3/ 1/39	3.32%	55.1%	3.33
Wisconsin Electric Power Co....	1st. Mtge. 3¼s of 1968	55,000,000	10/ 1/38	3.45	48.6[f]	3.09
Wisconsin Public Service Corp...	1st. Mtge. 4s of 1963	2,500,000	6/ 1/38	3.86	57.9[f]	2.37
Commonwealth Telephone Co...	1st. Mtge. 4s of 1966	2,750,000	9/ 1/36	4.22	50.8	2.34
Wisconsin Michigan Power Co...	1st. Mtge. 3¼s of 1961	10,500,000	7/15/36	3.75	56.1	2.52
Wisconsin Power & Light Co....	1st. Mtge. 4s of 1966	32,000,000[d]	6/ 1/36	4.19	61.3[f]	2.04
Wisconsin Gas & Electric Co....	1st. Mtge. 3¼s of 1966	10,500,000	4/ 1/36	3.75	53.0	3.34
Madison Gas & Electric Co.....	1st. Mtge. 4s of 1960	2,400,000[e]	4/15/35	4.20	34.5	5.53
Weighted Averages.....	—	$133,150,000	—	3.69%	53.8%	2.74

[a] Based on the net proceeds to the company after underwriters' commissions and incidental expenses.
[b] After refunding.
[c] Based on 12 months' operations ending at date of issue and using new bond interest rates.
[d] Excluding $3,700,000 of Serial Debenture 4s issued at a cost ranging from 4.06 to 4.53% dated 6/1/66.
[e] Additional bonds of this issue amounting to $1,000,000 were sold in 1938 (authority granted Sept. 28, 1938). These bonds were sold at 100.88% and after deducting reported expenses the net cost to the company was 3.39%.
[f] Includes investment in associated companies.

panies. It should be pointed out, however, that the changes in financial structure and the consequently more favorable financial position coincided with a very favorable money market to secure a very low cost of money to the Northern States Power Company (Wisconsin).

Summary of Recent Cases before the Public Service Commission of Wisconsin and the Securities and Exchange Commission[5]

The following actions involving the Northern States Power Co. (Wisconsin) were decided by the Public Service Commission of Wisconsin and the Securities and Exchange Commission in 1938 and 1939:

1. *In the matter of the Application of the Northern States Power Company to Issue 195,000 Shares of Common Stock Without Par Value*, 2-SB-97, decided January 27, 1938. In addition to other actions, the company proposed to issue 170,000 shares of common no-par stock for $11,500,000 of advances from the parent corporation, providing the remaining $5,480,000 of advances were cancelled. Petition denied.
2. *In the Matter of the Investigation on motion of the Commission of the Rates, Rules, Practices, and Activities of the Northern States Power Company and Midland Public Service Company*, 2-U-657, decided March 4, 1938, and *In the Matter of the Average Annual Rate of Depreciation of the Northern States Power Company*, 2-U-648, decided March 4, 1938. In its order in the above actions the Commission reviewed the past depreciation practices of the company, noting that in the years 1925 to 1933 the depreciation reserve had a debit balance and that at the end of 1936 the reserve amounted to only 1.1% of the total book cost of property. The Commission further stated: "The current balance sheet of the Company evidences the need for a financial housecleaning." The Commission ordered the company to set up annually a depreciation allowance of $600,000 and to stop payment of interest or principal on the advances owed to the parent corporation.
3. *In the Matter of the Application of Northern States Power Company for Authority to Issue $8,000,000 Par Value of Common Stock*, 2-SB-97, decided May 6, 1938. The company proposed on May 5, 1938, in a petition supplementary to its petition dated January 6, 1938 (denied on January 27, 1938 without prejudice to the right of the applicant to file another application), to issue $8,000,000 of common stock in exchange for a like amount of indebtedness now due the parent corporation, providing the remaining $8,980,000 of advances be cancelled. Application was granted with qualifications as to writing off of expired bond discount and other provisions. One provision included the instruction to use the $8,980,000 of capital surplus created by cancellation of advances to set up an additional depreciation reserve of $4,000,000, and another reserve entitled "Reserve for Adjustment of Book Costs of Investments" of $4,980,000. Permission was given to resume payment of common dividends upon payment of the arrearages in preferred dividends.
4. *In the Matter of the Application of Northern States Power Company for Authority to Issue $5,000,000 of Common Stock and also for an Amendment to Previous Certificates of Authority for the Issuance of Preferred Stock*, 2-SB-116, decided December 19, 1938. Company applied for authority: (1) to reduce its preferred stock dividend rate from 7% to 5% after December 31, 1938, (2) to provide for conversion of preferred stock to common stock, share for share, on or before March 1, 1939, and at the rate of one share of common for each one and fifteen one-hundredths shares of preferred, if made after March 1, 1939. Application was granted. (The parent corporation owned 44,472 shares out of 50,000 of the company's preferred stock).
5. *In the Matter of the Application of Northern States Power Company for Au-*

[5] Paragraphs 1 through 5 summarize cases before the Wisconsin Commission and paragraphs 6 and 7 summarize cases before the Securities and Exchange Commission.

thority to Issue $17,500,000 of Bonds, $2,532,700 of Common Stock, to Acquire all of the Assets and to Assume the Outstanding Bonds of Chippewa Power Co., 2-SB-119, decided March 9, 1939. Authority was granted to acquire the property of the Chippewa Power Co. for the sum of $2,467,270 (gross book value of plant $3,505,680). Permission was granted to issue 25,327 shares of common stock (par value $2,532,700) and $17,500,000 of 3½% bonds for the purpose of refunding $15,735,000 principal amount of the applicant's outstanding bonds, and $1,703,000 principal amount of 6% bonds of the Chippewa Power Co., and to provide funds for net additions to property including a proposed steam plant at La Crosse. The company was required: (1) to write off unamortized debt discount and expense applicable to the $2,532,700 of bonds refunded by issuance of common stock; (2) amortize the balance of debt discount and expense applicable to the refunded bonds over the period remaining to the normal maturity date of these bonds. The company was further required to record its liability with respect to the additional interest notes on $1,108,500 of its bonds (see note c, Table I).

6. *In the Matter of the Northern States Power Co. (Del.), Northern States Power Co. (Wis.), Northern States Power Co. (Minn.).* Public Utility Holding Company Act of 1935, Sections 11 (e), 10, 6 (b), 7, rule U-12d-1. Decided December 27, 1938. The Commission stated: "Due to inter-company indebtedness and inter-company security holdings the present relationship of the three companies is quite complex. The corporations desire to rid themselves of as many of these complications as possible and to make all practicable progress toward simplifying their inter-relations." The Commission approved the plan of recapitalization submitted by the Delaware Company subject to certain terms and conditions.[6] The application of the Wisconsin Company for exemption, pursuant to Section 6 (b), from the provisions of Section 6 (a) of the public utility holding company act of 1935 of: (1) the issue and sale of 80,000 shares of common to Minnesota, (2) the issuance to holders of preferred stock of additional shares of common and including the changing of the preferred dividend rate from 7% to 5% after December 31, 1938, was granted.

7. *In the Matter of Northern States Power Company (Wis.), Northern States Power Company (Minn.), and Chippewa Power Company.* File No. 32-132, Public Utility Holding Company Act of 1935 —Sections 6 (b), 10, 12 (c), 12 (d), 12 (f), 20 (a), decided March 21, 1939. The Commission ordered: (1) that the issuance and sale of $17,500,000 of 1st mortgage bonds of the Wisconsin Company and the sale of $2,532,700 par value of common stock (25,327 shares) to the Minnesota Company and the assumption of $1,703,000 principal amount of Chippewa Power Company bonds be exempted from section 6 (a) of the Public Utility Holding Company Act of October, 1935; (2) that sale by the Minnesota Company of $2,532,700 of bonds of the Wisconsin Company to the Wisconsin Company in exchange for $2,532,700 par value of common stock be approved; (3) the acquisition by the Wisconsin Company of its bonds from the Minnesota Company, for which approval is sought under Section 12 (f) of the Act granted; (4) the sale of Chippewa Power Company assets to the Wisconsin Company, for which approval is sought under Section 12 (f) of the Act, be granted; (5) Provided, however, that (a) the actions approved be carried out in the manner and for the purpose set forth in the respective applications, as respectively amended, (b) exemptions granted under 6 (a) of the Act shall terminate if authorization by the Public Service Commission of Wisconsin shall be revoked or otherwise terminated. Certain other conditions were made, pursuant to the powers vested in the Commission by Sections 12 (c) and 20 (a) of the Act, with respect to maintenance of plant.

[6] See SEC, *Release* No. 1471, dated March 21, 1939 for a complete summary of the entire plan of recapitalization. The action before the SEC covers simplification of the Delaware and Minnesota Companies' capital structures as well as that of the Wisconsin Company which is covered in this article.

Graphic Analysis of Tax Assessment and Equalization Problems

By ALFRED NORMAN NYBROTEN*

THE statutory standard of value for assessment and equalization of Wisconsin real estate is the "full value which could ordinarily be obtained therefor at private sale." Most states as well as foreign countries use the market or a derivative of the market as the standard. The merits of the standard will not be discussed here, but rather the relationship between the assessment and what is ordinarily accepted as the standard.

In the Wisconsin tax system the state tax rate is only .0002 on general property; therefore it is not so important to make a state assessment for this purpose. However, there are two important reasons for determining the full market value of general property in all political subdivisions. County levies are apportioned among the political subdivisions within the county on the basis of the full statutory standard. For this equalization, full values are recommended to the county boards by the tax commission. The tax commission maintains 10 district offices in charge of supervisors of assessments whose duties are to instruct local assessors and to recommend full values to the county boards for equalization and to the tax commission for the state assessment. Although these values are not mandatory upon the county boards, they are generally adopted for apportionment of county levies. The second important reason for obtaining full market value is that railroads, privately owned public utilities, and that portion of municipally owned public utilities located outside of the municipalities owning them are taxed by the state at the average state tax rate on general property. The average state rate is computed by dividing the total of the general property taxes by the full value of the property against which these taxes are levied.

Full value, in the Wisconsin system, is not obtained through a complete assessment by the commission, but is derived by determining the status of the local assessment with respect to the market and using the local assessment as a basis.[1] This is done through a sampling process. Ratios are computed between the aggregate assessment and the aggregate consideration shown in the property transferred during the year. When transfers are inadequate to supply reliable samples, supplementary appraisals are made by the supervisors. The local assessment is then divided by the resulting ratio to determine the full value. This is done for every town, city, and village in the state.

Assessment "Levels"

In the past, the usual way of obtaining a statistical concept of the level of assessment with its variations has been a rather laborious process. Various numerical measures of dispersion have been used. Probably the most common one has been the average deviation from the ratio of aggregate assessment to aggregate consideration or appraised value of real estate either transferred or appraised. In this method it is necessary

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[1] In a few town assessments, however, the dispersion is so great and the classification so unreliable that they cannot serve as bases for full value. In these cases it is necessary for the supervisor to make a complete assessment for state and equalization purposes.

to divide each individual assessment by the consideration, or by the appraised value in case of appraised real estate, to obtain individual ratios to compare with the ratios of aggregates. The differences between the individual ratios and the ratio of aggregates are then all treated as positive and averaged to obtain the average deviation. This measure has all the weaknesses of any other arithmetic average and does not reveal much as to the size of individual constituents.

The standard deviation and other measures of dispersion can be of great help in determining more as to the spread of the dispersion, but do not have much meaning to the general taxation bodies especially in defending their values to political subdivisions or interested taxpayers. True, a great deal can be shown by use of a classified frequency table of the individual ratios, especially if the table is cross-classified with types of real estate and value classes, but that is another laborious process. An attempt to simplify these processes is here presented.

Charting Assessment and Equalization Data

During the past year the writer has analyzed the work of various assessors throughout Wisconsin with what is simply a log-log analysis. It has been found to be extremely helpful both in expediting determination of various factors in the assessment and in presenting various problems of equalization.

Chart I shows a distribution of the assessments with the respective considerations for residential real estate transferred in the city of Madison during 1936, 1937, and 1938.[2] If this had been plotted on a uniform scale, the picture would have presented a certain bias because a given percentage deviation on the more valuable parcels would have appeared relatively large. Absolute deviations would appear on a uniform scale, whereas a logarithmic scale shows the relative or percent deviation. Plotting the assessments and the considerations on the log-log scale amounts to the same thing as plotting the ratio between the assessments and their respective considerations on a uniform scale plus retaining the original magnitude of both the assessments and the considerations.

The possibility of retaining the sizes of the assessments and the considerations is of importance in determining the status of the assessment as to regressivity and progressivity. To endeavor to determine the level of an assessment that is either progressive or regressive is a difficult procedure. Many assessments are particularly difficult to determine because they do not lend themselves to either generalization. In the case of the assessments shown on Chart I, the amount of general regressivity or progressivity is insignificant. However, consider the bare land (unimproved parcels) separately. Note the general rise in level of assessment as value increases. From lots assessed at $500 to lots assessed at $1,500 the assessment is quite decidedly progressive. It is extremely progressive from $500 to $1,000. Why should the equalizer know this? For the answer to this question Chart II should be considered in conjunction with Chart I.

In short, Chart II is merely a picture of the relative activity in the real estate market of the various price-classes of vacant residential parcels. The "O's" represent the actual transfers which have taken place during the three years and need no further definition. The "X's," or

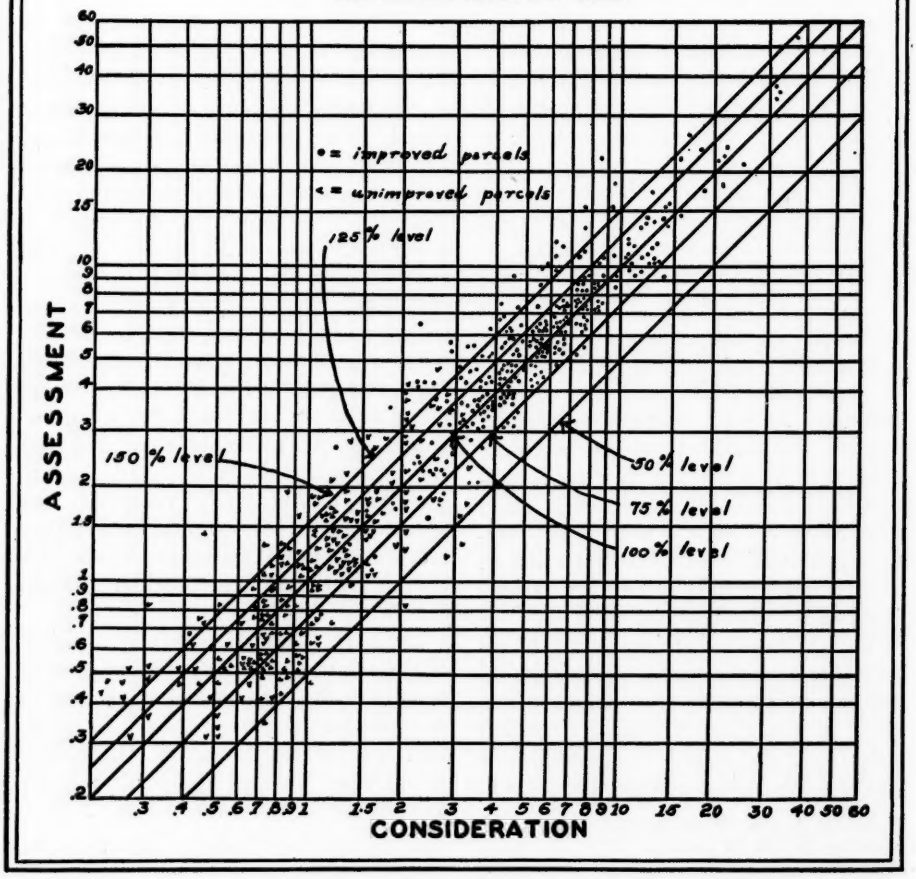
[2] Although the term "all transfers" is used throughout, it does not include all transfers. Quit claim deeds, forced sales, title transfers, transfers between relatives, and others having doubtful validity for equalization purposes have been excluded.

theoretical transfers, are the frequencies based on the assumption that each value-class should have the rate of turnover of the average of all classes. In 1938 it was found that there were 3,090 separate assessment parcels of vacant residential land in the city. During the three years, 379 of these were transferred. Dividing 379 by 3,090 gives an average rate of turnover of .12265 for all classes.[3] This rate was then applied to the number of parcels found in each class. For example, 370 parcels were assessed at less than

[3] The rate of turnover is based on the number of parcels transferred rather than on the value of the property sold. Ordinarily the rate of turnover is based on the value rather than the number. It would be desirable to have both measures, but when the classes are kept small there is not much difference between the two.

CHART I. ASSESSMENT AND CONSIDERATION OF TRANSFERS OF RESIDENTIAL REAL ESTATE, MADISON, WISCONSIN 1936, 1937, AND 1938

(LOGARITHMIC SCALE: UNIT—$1,000)



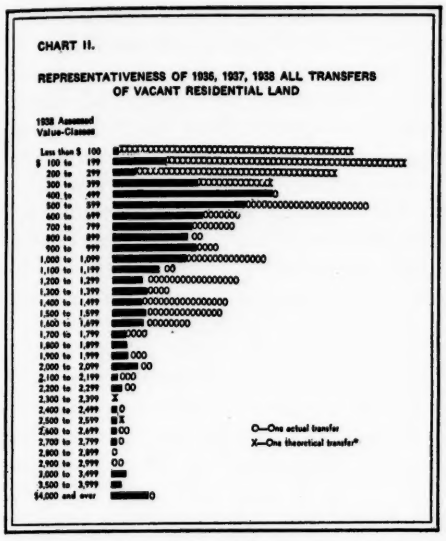


CHART II.
REPRESENTATIVENESS OF 1936, 1937, 1938 ALL TRANSFERS OF VACANT RESIDENTIAL LAND
1938 Assessed Value-Classes
O—One actual transfer
X—One theoretical transfer*

* The frequency that actually would have occurred had the rate of turnover been the same in all value-classes. The method of calculating this frequency is explained in the text.

$100. Then to obtain the theoretical frequency, 370 was merely multiplied by .12265, giving 45. Note that only one of these was represented by an actual transfer. This means that the rate of turnover in this class was only .0027. This indicated that appraisals need to be made in this class as well as the next three classes in order to obtain an adequate sample.

In order to come back to the problem of making adjustments for the progressivity between vacant parcels assessed at at $500 and $1,500 according to Chart I, it is necessary to study the turnover in this range. Note that in the $500 class there is, according to Chart I, relative underassessment in the class and according to Chart II a heavy turnover. However, as one advances toward the $1,500 class, the level of assessment rises as does also the rate of turnover. Suppose a ratio of the aggregate assessment to the aggregate consideration were calculated for parcels falling between assessments of $500 and $1,500. The result would be a ratio much too high because the heavy turnover happened to be in the parcels that were relatively overassessed. It is extremely difficult, in fact quite impossible, to break a regressive or progressive assessment down into segments small enough to make the "levels" fairly reliable. If the sample of transfers is representative—i.e., if all phases of the statistical universe are proportionately represented—such a breakdown is not necessary.

To the statistician, Chart III should be of considerable interest because it shows a very nearly perfect correlation between actual transfers and theoretical transfers. It is unfortunate that Chart II could not have been the more perfect of the two, because a glance at the distribution of improved parcels on Chart I shows no appreciable regression or progression, whereas in the distribution of unimproved parcels there is a definite need for good class representation.

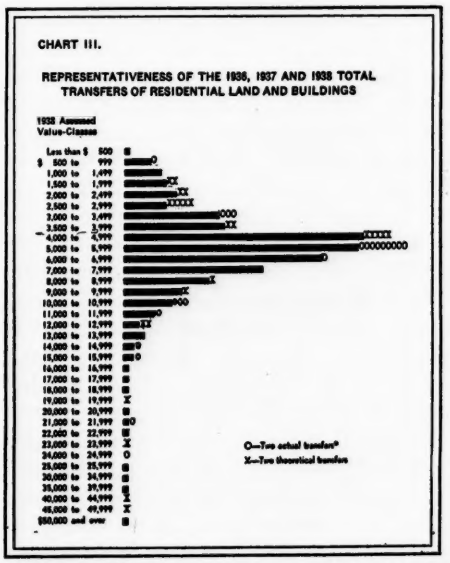


CHART III.
REPRESENTATIVENESS OF THE 1936, 1937 AND 1938 TOTAL TRANSFERS OF RESIDENTIAL LAND AND BUILDINGS
1938 Assessed Value-Classes
O—Two actual transfers*
X—Two theoretical transfers

* Where an odd number occurs, one more transfer than actually occurred is shown. This is also true of theoretical transfers.

The difficulty of presenting to a county board, city council, or any other group of laymen a numerical measure of dispersion has already been mentioned. Chart I, besides being an expedient method of estimating the dispersion, is a picture in finished form ready for presentation. For such purposes it would be desirable to have a rather large graph in order to be able to point out more detailed data. On the chart are four diagonal lines marking various levels of assessment. The reader may be interested in how those levels can be located on a log-log chart. The chart shown here has only one complete cycle. If an entry had occurred at the extreme lower left-hand corner, it would have meant a consideration of $200 and an assessment of $200. An entry at the extreme upper right-hand corner would mean an assessment of $60,000 and a consideration of $60,000. Both of these are 100% assessments and all points on a straight line between them indicate 100% assessments; the 100% level is thus determined. An assessment of $200 and a consideration of $400 means a 50% assessment; so does an assessment of $30,000 and a consideration of $60,000. All points on a straight line connecting these two points have 50% assessments, and the 50% level is found. A consideration of $200 and an assessment of $300 means a 150% assessment, as does an assessment of $60,000 with a $40,000 consideration. These points determine the 150% level. On standard log-log graph paper with complete cycles the locating of these levels is still easier. In that case the index for the considerations can be made to conform with the index of the levels. If a chart runs up to $100,000, the point of $90,000 indicates a 90% assessment and determines the line. All lines of dispersion (percent levels) are parallel.

The average deviation of the assessment shown on Chart I is approximately 24%, taken either from the ratio of aggregates or from the arithmetic average of individual ratios. It is noteworthy that the dispersion in overassessment is greater and more ragged than is the dispersion in relative underassessment. In assessed values of unimproved parcels ranging from $500 to $800 are many frequencies falling between the 50% and 75% levels, but this does not invalidate the generalization just made, because here the mode has slipped down rather than isolated stragglers. Greater dispersion on the side of overassessment does not appear to be a characteristic peculiar to this particular assessment. Another study of several assessments which supplemented those of the writer led to the same conclusion as to the consistent direction of skewness.

Some time was spent in speculating on the cause for such lack of normalcy and it seemed that the only logical explanation at present is that the assessor concentrates on low assessments, leaving the taxpayer to complain about high assessments.[4] The direction of the skew in this assessment probably indicates that the assessor has been more active than the taxpayers. In times of depression, when cities must watch their financial structures, this activity may receive a special impetus.

It is not intended here to give the idea that the assessment shown on Chart I is a poor assessment—quite the contrary. The assessment in the city of Madison is, in the estimation of the writer, among the best. It must be borne in mind that comparison of the level of assessment with the level of the market

[4] It may be argued that the reason for the skewness is that there is no upper limit, whereas the lower limit is zero. Such an argument would be valid, if the dispersion appeared greater in the overassessment when plotted on a uniform scale. A log-log scale graphically corrects this bias because the zero origin is located at infinity.

is a comparison with a variable factor which has peculiar individual fluctuations. The instability of the market is a cause of a good deal of the dispersion shown on Chart I. All individual ratios of assessment to consideration were plotted on a map of the city in an attempt to localize areas of overassessment and of underassessment. It was found that considerations in transfers of contiguous lots of the same dimension varied as much as 25% within a two-year period. Considerations in transfers of parcels sold more than once during the same period showed fluctuations almost as great in some cases.

Using Only "Representative" Transfers

Mere speculation on the reason for skewness may not be very productive, but the fact is that the skewness is there and that an important practical problem arises. The statutory standard used in Wisconsin is the amount that could "ordinarily be obtained." Does "ordinarily" imply a modal concept? In the Wisconsin system, the district supervisors of assessment are allowed to use their own judgment to some extent as to what sales to use to obtain "full" value for equalization purposes. Often this leads to a sort of modal treatment. Since the dispersion is greater on the side of overassessment, the tendency is then to reject more transfers indicating overassessment than underassessment, unless care is taken to alternate the "highs" and "lows." Even with this care a bias still inheres in the method because the deviations in the ones rejected for overassessment are by chance greater than the deviations in those rejected for underassessment, and consequently have a greater influence on the arithmetic average.

The mode used in Table I is rather difficult to define, but it is based on the transfers having ratios that generally fall within a given range. Although it is a little indefinite, it illustrates the danger of using any type of mode rather than the arithmetic average. Note that use of only the "modal" transfers in determining the ratio of assessed value to "full" value results in a residential real estate valuation of over $80,000,000. On the basis of "all transfers," this valuation drops down to $73,000,000 on the unweighted average and to $72,000,000 on the basis of the ratio of aggregates. Such is the bias caused by use of a type of modal concept on a distribution skewed as much as the one shown on Chart I. It seems that an inspectional concept is not

TABLE I. DISTRICT VALUES BASED ON THE ASSESSMENT AND CONSIDERATION OF TRANSFERS DURING THE THREE YEARS

Values	West Side	Central Area	East Side	City
Assessed Value, 1938	$30,355,040	$33,930,950	$14,671,570	$78,957,560
Modal Transfer Value				
Unweighted*	32,361,450	33,168,084	14,700,972	80,230,506
Weighted†	31,952,674	33,528,607	14,834,752	80,316,033
High and Low Transfer Value				
Unweighted	26,862,867	26,738,337	13,337,791	66,938,995
Weighted	25,944,479	25,473,686	13,386,469	64,804,634
All Transfers Value				
Unweighted	30,144,032	28,585,468	14,285,852	73,015,352
Weighted	29,614,673	28,370,360	14,216,638	72,201,671

* The ratio of each year has the same weight regardless of the difference in the volume of transfers from one year to another. The local assessment was then divided by this average ratio.

† This is based on a ratio of aggregates for the three years. The total assessment in the transfers was divided by the total consideration.

adequate to measure a distribution of this kind.

Testing for Assessors' and Equalizers' Complexes

The weaknesses of assessors may be classified into various complexes. One of the most difficult to adjust for is the "ownership complex." In one case various entries followed by a "W" were found by one of the district supervisors in an assessment roll. Inquiry made to the assessor revealed that such real estate belonged to widows. There may be discrimination on the basis of race, religion, political belief, club affiliations, and many others. A very likely basis is the financial status of the owner. Such possibilities are so numerous that it becomes very difficult to find them by a mere statistical method. Probably the best means of detecting these discriminations is for the equalizer to know the assessor intimately. The "value-class complex" is easier to uncover. This results in regression or progression. If an assessor overassesses or underassesses in one value-class, it shows up clearly on Chart I. The log-log analysis is so well adapted for this complex that the results appear almost automatically. Discrimination among localities within the assessment district may be called a "geographical complex." This will be given some attention later.

During the last few years the Wisconsin Tax Commission has broken real estate up into six different classes for assessment and equalization purposes.[5] The theory of this is that the assessor may do a different level of work on various types. The log-log chart has been found useful in this connection because the different types may be plotted in different colors. If there are different levels of assessment for the different types of real estate, the various colors will tend to conglomerate and show the difference in treatment. An interesting test carried on in Wisconsin has sought to discover whether the assessor copied the consideration in the individual transfers and let the old assessment stand on real estate not sold. In order to test for this, different colors were used for transfers occurring before and after the roll was turned in. If the assessor had copied sales considerations, the color used for transfers occurring after the roll was turned in appeared on the margins with greater dispersions. Where this condition is found, the transfers occurring before the roll is turned in are no good for equalization purposes.

The geographical distribution of the transfers used in equalization is very important. This is especially important for larger cities having some areas rising in value and others declining or at least rising at a less rapid rate. The equalizer who finds that land is rising in value in the suburbs or out on the fringe needs to be particularly cautious in equalizing with the sales-ratio method. Usually the rise in land value out on the fringe is attributable either to an actual growth of the city or to improved transportation, or both. If it is the result of actual growth, he needs to try to determine whether the growth is uniform throughout the city. If the fringe is rising in value because of improved transportation, he needs to look for a declining area in the older sections of the city. A good method of doing this is to plot the ratios of assessment to consideration on the map in their respective locations. It is best to represent the various sizes of ratios with colors in order to see the localization. Originally, Chart IV contained a legend with six colors. The main

[5] L. B. Krueger, "The Classification of Farm Lands for Assessment Purposes in Wisconsin," 8 *Journal of Land & Public Utility Economics* 113–25 (May, 1932).

disadvantage of using colors is in photographing and publishing.

The three areas mentioned in Table I are not entirely arbitrary divisions. The "west side" is the area west and south of Regent Street, Camp Randall, and the University. According to the 1938 local assessment, the residential real estate in this area was valued at $30,355,040. The "central area" is bounded by the "west side" and the Yahara River, except for the little plat marked "X." The residential real estate in this area was assessed at $33,930,950 in 1938. From the standpoint of residential use, the west side is rising at the expense of the central area. The "east side" assumes a middle position of not much change. The local assessment of residential real estate for the latter was $14,671,570 for 1938.

A division of the city into districts for purposes of equalization is of considerable importance. In the first place, there may be a scarcity of transfers in the central area.[6] Without some study the equalizer does not know where he needs to supplement his transfer data with appraisals. With such a distribution it becomes quite apparent that appraisals do need to be made in definite areas. It must be remembered that equalization is made among political subdivisions, whereas factors influencing real estate value are not likely to be circumscribed by political boundaries. By applying the ratio of the aggregate assessment to the aggregate consideration of the modal transfers for the three years to each district separately and then adding the "full" values of the districts, a figure of $78,957,560 is obtained. Use of all transfers yields an amount of $72,201,671. Use of modal transfers without the district breakdown gives a value of $81,542,500. Use of all transfers without the district breakdown gives $74,096,809. The reason for this is that the assessment lags behind the market, with the trend of the market differing in different districts.

[6] It may appear that each dot should be weighted in size by the value of the parcel transferred, but that would introduce a bias. It is true that the transferred parcels in the central area are more valuable than those shown in the other areas, but this is compensatory because the parcels not transferred are relatively more valuable. In practice, it would be desirable to show this distribution on a large-scale map and to indicate all areas not open to residential use.

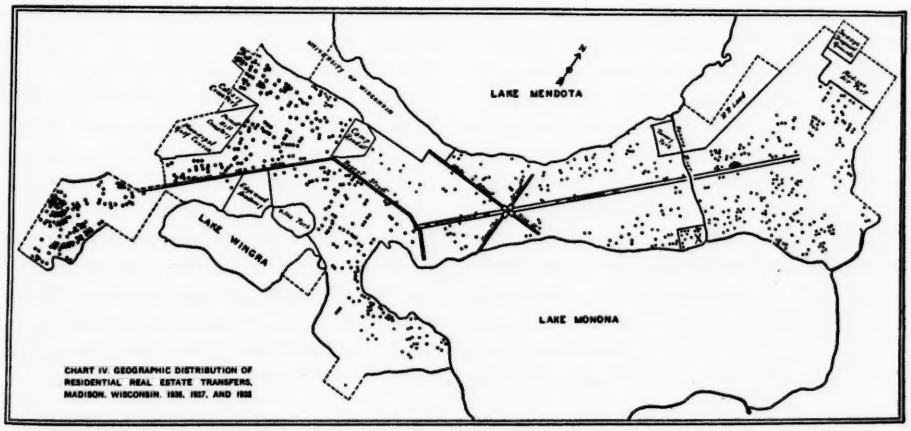


CHART IV. GEOGRAPHIC DISTRIBUTION OF RESIDENTIAL REAL ESTATE TRANSFERS, MADISON, WISCONSIN, 1936, 1937, AND 1938

The question as to the location of the boundaries of areas requiring separate treatment in equalization is one requiring a good deal of judgment. As has been pointed out, it is quite impossible to equalize through a sales-ratio method without a separation between areas rising in value and those declining in value, unless the transfers or appraisals used are quite perfectly representative. Where transfers are scarce and need to be supplemented by appraisals, it is probably better to make the sample of transfers plus appraisals representative by making the appraisals so as to get geographical representativeness but, where transfers are plentiful, it is more expedient to delineate the areas. If assessment did not lag with respect to the market, no distinction would be necessary. Such lag results in different levels of assessment in areas having different value trends. The equalizer needs to know how much property is represented by each level so that he can weigh each level by the amount of property it represents. Areas having different levels of assessment can be revealed by spotting on a map the individual ratios of assessment to consideration. The equalizer must, of course, use his judgment because, if he makes his areas ridiculously small, he will find himself reassessing rather than equalizing.

Although they may vary in degree, the problems of assessment and equalization are of much the same nature in rural as in urban communities. The difference in the value trends in real estate in rural areas is not likely to be as sharp as it is in the cities. If it becomes necessary to give different farm areas separate treatment in equalization, the basis would probably be among various types of farming or on a physical basis, such as soil classification. Within a given type of agriculture, all farms are affected quite similarly by value influences, because the market for their products is very universal and standard. Generally, what needs to be revealed in equalization is any complex an assessor may have that results in any bias in his valuation. These complexes are likely to be common in nature to both urban and rural assessors. The general method that is set up here may be applied to rural as well as to urban assessors.

It should be remembered that the sales-ratio method endeavors to set up a relationship between two statistical universes. These are the local assessment and the statutory standard. The latter exists in the minds of the legislators and they should draw up specific definitions as far as possible. However, some judgment on the part of the administrator will always be required. The local assessment actually exists and lends itself more readily to statistical treatment. It can be determined by a good random sampling process. It must be remembered, however, that there may be factors in the market which make the parcels transferred a poor sample of the assessment. Representation may be poor geographically, or poor with respect to type of property, or to rate of turnover in the different value classes. Supplementary appraisals should be made with a view to making the sample adequate both in size and in representativeness. A sales-ratio method, that is supplemented by appraisals, does not, of course, serve as an instant check on the appraisals made by the equalizer, but it does result in a better sample of the assessment and, if he properly transmits unit values from comparable property that has been transferred, it should bring about improved equalization.

German Tenancy Problems and Policies

By H. W. SPIEGEL*

BECAUSE of a highly developed farm-credit system, farm tenancy is nowhere near so important in Germany as in many other countries. Only 10.7% of all land in farms and forests was rented in 1933. As Table I shows, the tenancy situation has been virtually stationary for many years. The slight changes in the last 20 years are the results of changes in statistical techniques.

TABLE I. PER CENT OF ALL LAND IN FARMS AND FORESTS UNDER LEASE, 1895–1933*

Period and Area	Per Cent of Land under Lease
1895	12.4%
1907, pre-war territory	12.8
1907, post-war territory, excluding the Saar	12.6
1925, post-war territory, excluding the Saar	12.4
1925, all land in farms and forests over .5 hectare	10.8
1933, all land in farms and forests over .5 hectare	10.7

* *Statistik des Deutschen Reichs*, v. 459, 1 (Berlin, 1937), p. 55.

The census of 1933 does not cover holdings under .5 hectares (1.24 acres), which include a large number of rented "farms." Moreover, the figures for the earlier years represent the percentage of all land in farms which comprises also the acreage of forest property in so far as such property includes farm land. The second figure for 1925 and the figure for 1933 represent the percentage of all land in farms and forests. Recently an official of the Reich Food Estate has maintained that it is not correct to take the percentage of rented land from a total which includes land in forests, because forest land is seldom rented. Thus he takes the percentage of rented land from a total which includes only agricultural land proper. On this basis, the land under lease amounted to 16.6% in 1933.[1] Much may be said in favor of this method because it compares better with the large number of tenants who rent the relatively small area under lease. As a matter of fact, almost 50% of all farmers rent some land.

The difference between the amount of rented land and the number of farmers who rent land indicates not only a large number of small tenants but also of part-owners, in particular. The distinction between the renting of farms, which means leasing a complete productive unit including buildings and all other improvements on the land, and the supplementary renting of certain tracts of bare land, which are used by farmers with adjacent land, is of great importance. The distribution of owner-operated farms, tenant farms, and partly owned farms is shown in Table II. As this table indicates, 92% of all farm operators own their land, partly or wholly; 51% own all their land; and 41% have farms composed of owned and rented land. Only 6% of all farmers are tenants proper.

Again the changes in the figures from 1925 to 1933 do not represent real changes, but rather the exclusion of the holdings smaller than .5 hectare from the 1933 census. These "farms" include a large number of tenant holdings, but relatively fewer owner-operated and partly owned farms. Thus the percentage of both these types has risen, and that of the tenants has decreased.

We shall pass now to the distribution of tenant-, part-owner, and owner-op-

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[1] Sauer, Agrarpolitik und Landpachtproblem, *Recht des Reichsnährstandes*, 1937, V, p. 213.

TABLE II. FARMS, BY TENURE GROUPS, PER CENT DISTRIBUTION, 1895–1933*

Year	Owner-Operated Farms	Tenant Farms	Partly Owned Farms			Other (Allowances, etc.)	All Farms
			All	Less than ½ of Land Rented	More than ½ of Land Rented		
1895	40.7%	16.4%	30.5%	20.9%	9.6%	12.4%	100%
1907	42.9	17.2	29.9	20.2	9.7	10.0	100
1925	42.0	17.0	29.0	20.0	9.3	12.0	100
1933	51.3	6.2	41.0	†	†	1.5	100

* 1895–1907: K. Grünberg, Agrarverfassung, in *Grundriss der Sozialökonomik*, Pt. VII, Tübingen, 1922, p. 149; 1925: *Statistisches Jahrbuch*, 1927, p. 53; 1933: *Wirtschaft und Statistik*, 1934, p. 370.
† Not reported.

erated farms within the various size groups. Table III indicates that the tenants and part-owners are more significant among the small- and medium-sized holdings than among the larger. The comparatively large percentage of tenants within the class of 200–500

TABLE III. FARMS, BY TENURE AND SIZE GROUPS, PER CENT DISTRIBUTION, 1933*

Size Groups—in Hectares (1 ha=2.4 acres)	Owners	Tenants	Part-Owners	All Farm Operators (in thousands)
.5 to 1	50.4%	12.6%	33.1%	360
1 to 2	46.9	8.9	42.1	474
2 to 5	42.2	5.9	51.0	788
5 to 10	46.7	3.7	49.4	619
10 to 20	59.9	3.5	36.6	451
20 to 50	74.1	3.9	22.0	267
50 to 100	77.0	5.7	17.3	54
100 to 200	75.3	9.8	14.9	17
200 to 500	76.2	12.4	11.4	11
500 to 1,000	79.8	8.0	12.2	4
1,000 and over	91.1	.8	8.1	3
Total	51.3	6.2	41.0	

* H. Krause, Pachtland und Betriebsgrössen, *Berichte über Landwirtschaft*, new ser., XXI, 1937, p. 735.

hectares is caused by the renting of the large holdings of the mortmain corporations and the public institutions. Among the largest estates, which often contain big forests, the percentage of tenants becomes negligible. Similar conclusions can be drawn from Table IV which shows the per cent distribution of the land under lease by size groups.

[2] "Die Besitzverhältnisse der land- und forstwirtschaftlichen Betriebe," *Wirtschaft und Statistik*, 1934, pp. 371–2.

The number of tenant farms of 2–5 and of 5–20 hectares has increased since 1925 faster than owner-operated holdings of this size.[2] One observer has maintained that this development may be a forerunner of a general trend in size of all farms and that, perhaps, owner-operated farms too will move from the larger to the middle- and small-sized groups.[3] If this occurs, the government,

TABLE IV. LAND UNDER LEASE, BY SIZE GROUPS, 1933*

Size Group in Hectares (1 ha=2.4 acres)	Per Cent of All Land in Farms and Forests
.5 to 2	27.5%
2 to 5	23.4
5 to 20	14.2
20 to 100	8.5
100 to 1,000	12.6
1,000 and over	.7

* *Wirtschaft und Statistik*, 1934, p. 370.

whose policy is directed toward maximization of the agricultural output for the market, will have to check the new trend, for smaller farms mean less commercial farms.

Three Tenancy Regions

About 15 years ago, the tenancy situation in Germany was investigated by Max Sering and his associates in order to collect the facts upon which reform

[3] H. Krause, Pachtland und Betriebsgrössen, *Berichte über Landwirtschaft*, new ser., XXI, 1937, pp. 733 ff.; XXII, 1937, pp. 252 ff.

legislation could be based.[4] According to the work of these men, three different regions of farm tenancy are to be distinguished: the region of the small farmers in the South and West; the region of large estate owners east of the Elbe; and the region of the medium-sized farms between these regions.

In South and West Germany the favorable climate, fertility of the river valleys, and the division of inherited land have resulted in a large number of small farms. Farming is based upon family labor, and there are only few hired men, who are, in general, much better paid than in the East. The density of the population, the near-by cities with their industries, and absentee ownership of large holders have brought about a keen competition for farm land. There are many small holdings, part-time farms which consist of a house with a strip of land that would represent several city lots and which have not the capacity to provide the livelihood for a family without additional income. On the other hand, these smallest holdings include also the vineyards and the horticultural holdings which are so labor-intensive that frequently they have to employ a considerable amount of hired labor. In that region, public and private corporations own vast areas, especially in the Rhine province, where more than ⅓ of the farm land proper is rented. A large proportion of these farms consist of vineyards which are leased in small units. The growth of the near-by cities has brought about absentee owners—townspeople, who let the land to small tenants. One big owner lets his estate sometimes to 1,000 tenants. Many industrial corporations have invested their money in land which they rent in small parcels on reasonable terms. These corporations are more willing to lower the rent in times of depression than are the small owners who are more dependent upon the rent as a source of income. Because of the competition for land, it is more profitable to divide the land into small parcels and rent it thus than to operate it as an owner or rent it as a whole.

"The customary division of inherited land led to a peculiar mechanism of the social life. The inherited holding is equally divided among the children. The son who gets the buildings remains a farmer. However, because the buildings are too big for the inherited farm after its division, he looks around for enlargement. Besides a clever marriage policy this is effected in the main by additional leases and purchases. A second son goes into the city to work as a laborer, craftsman, or small official, until he has saved enough money for taking up farming again on his own inherited land which he, meanwhile, has let to a tenant. The daughter enlarges the husband's farm with her inherited land. If she marries somewhere else, she rents or sells her land. In this manner, every division of inherited land brings many new small owners and tenants. Among the lessors there are laborers, craftsmen, small officials, minors, and women."[5]

This admirable description was written 15 years ago, when there was no Entailed Farms Law in Germany.[6] This law was enacted in 1933, and applies to 25% of all German farms which it has entailed and thereby established a form of tenure which turns out to be inflexible because the farms cannot be subdivided, cannot be sold or mortgaged, and because of a compulsory rule as to the succeeding heir. The small farmer lets his land for personal reasons only; there is no institutional landlordism in this

[4] Sering, Seiff, and von Dietze, *Berichte über Landwirtschaft*, new ser., I, 1924, nos. 3–4; II, 1925, pp. 1ff. The following description of the three tenancy regions draws much from this valuable source.

[5] Seiff, *op. cit.*, I, 1924, p. 17.

[6] For a comment on this legislation see H. W. Spiegel, "Land Inheritance under the Swastika," *Agricultural History*, 1939.

class. The agricultural ladder works only through the renting of additional land.

The medium-sized farms are located between the western regions and the Elbe river. Throughout this area, the state and the nobility own large estates which are operated by tenants. The conditions are good because of the high training of the farmers and the satisfactory size of the farms.

There is not so much tenancy in the East where the population is sparse and where large landed property still prevails. Closed inheritance keeps the land distribution stationary. If large estates are rented, the tenants enjoy a position which is hardly inferior to that of an owner-operator. Small tenants, on the other hand, have little opportunity for social advancement. Many workers on the large estates receive allowances in land which give them a tenant-like status. These allowances are a part of the wage in the labor contract which specifies the various forms of payment which the farm laborer receives, including cash, wage in kind, and the usufruct of a certain stretch or patch of land. This stretch of land may consist of a garden plot; as a rule, it amounts to a larger area sufficient for cultivating potatoes or providing food for hogs, for example.

The Rent

With some insignificant exceptions, the rent is always flat cash. Unlike the farmer in the United States, where, in 1930, only 7.8% of all farms were operated by cash tenants, the German tenant does not take refuge in a share lease. The typical diversification of farming in Germany, which is most intensive on the small farms but is also prevalent on the large estates, makes them less susceptible to the financial collapse that is typical for specialized one- or two-commodity farming. Furthermore, since there is so much renting of adjacent lots of bare land in Germany, it is economically impracticable to divide the products raised with the help of the additionally rented land. Moreover, German farming is not only less specialized than American farming, but has also been for a long time much less risky than American farming because the state used to mitigate price fluctuations at a time when such help was unknown in the United States. If the state does so, it is not necessary to take refuge with the landlord. Finally, the landlord does not want to share the various products raised for home consumption of the tenant.

Rents are high. Rents for a farm amount to 4 to 5% and rents for parcels of land amount to 6 to 10% of the so-called "basic value,"[7] a value which is, in general, much higher than the market value of the holding. Other estimates speak of a return of 4.5 to 6% on the landlord's capital.[8] Rents were much higher before the depression than before the War. It is now reported that "the rents will probably once more reach the peak of 1928."[9] The development up to the depression is shown in Table V.

TABLE V. RENTS IN BRANDENBURG AND POTSDAM, 1910–17 AND 1925–30*

Type of Soil	Rent per Hectare (marks)		Increase
	1910–1917	1925–1930	
Medium soils....	29	40	38%
Good soils.....	38	46	21

* Rothkegel, *op. cit.*, p. 421.

The increase in rent may be in line with the general price level or, what is the same, with the purchasing power of the mark. However, it is interesting to note that keener competition has brought about a considerably greater

[7] Sauer, *op. cit.*, pp. 215–6.

[8] Rothkegel, in *Deutsche Agrarpolitik*, ed. by the Friedrich-List-Gesellschaft, v. 1, Berlin, 1932, p. 421.

[9] Sauer, *op. cit.*, p. 216.

increase in rent for medium than for good soils.

There is an inverse relation between rent and the amount of rented land. The most outstanding authority in this field states that the rent (per hectare) for holdings of 10 to 20 hectares is twice as high as the rent for holdings over 100 hectares, and that the rent for holdings under 10 hectares is even three times as high as that for holdings over 100 hectares.[10] The reason for this high price of smaller tracts is, in the first place, that often the price is not determined by capitalistic calculation, but by the tenant's vital desire to use his working power. Thus the amount of rent is related rather to the intensity of his personal needs than to objective conditions. But occasionally the objective conditions justify such high prices of small parcels, particularly when additional land is rented. Here the return of the parcel may be higher if it is rented than if it is owner-operated:

"If, for instance, a large estate contains much pasture land while the near-by peasants have only little pasture, then, if the peasants rent this pasture land, the productive capacity of their farms is much higher."

They may raise more cattle now and increase the production of barnyard manure needed so urgently on sandy soils.

"But even if the lease term is long, the peasants depend a great deal upon the landlord . . . , and their situation, after the expiration of the lease, is perhaps worse than as tenants of the whole farm, when at least they should have the possibility of terminating the lease"

and moving away.[11]

Characteristics of the Landlords

As regards the characteristics of the landlords,[12] there is no doubt that a class of permanent landlords exists in Germany. We have mentioned the large landowners in the West who let their land to thousands of tenants. Although these landlords, in the main, belong to the nobility, many industrial corporations and townspeople, such as officials, business men, "retired colonels," and the like, are absentee owners. All these permanent or institutional landlords may amount to one quarter of the total numer of landlords.

Of more importance is the second class of institutional landlords which is composed of the public authorities, the states, railroads, municipalities, churches, and charitable trusts. They may likewise amount to 25% of all landlords, but about 50% of the rented land belongs to them. The amount of farm land rented by Prussia is reported as 350,000 hectares, that of the Reich Railroad Corporation as 70,000 hectares, and that of the various churches as 850,000 hectares.

Where the landlord is a farmer, tenancy is mainly temporary. Likewise, almost all landlords who belong to the non-permanent landlord class are farmers who let part of their holdings to tenants for managerial or personal reasons. Finally, there are many temporary landlords among those who have bought land in order to erect buildings or for other non-farming purposes.

Retired farmers, who rent their farms to a son, are few in number. In recent times, an increase in this lease type has been reported; entailed farmers who want to retire have rented the farm to a son instead of transferring it to him. They did this because they tried to avoid the *Altenteil* as provided by the Entailed Farms Law of 1933 which allows the retired farmer only scanty means. The authorities do not like leases of this type which supply the retired farmer with

[10] Rothkegel, *op. cit.*, p. 420.

[11] Aereboe, *Agrarpolitik*, Berlin, 1928, pp. 212–3.

[12] Sauer, *op. cit.*, pp. 217–8.

better means at the cost of the farm, and they do not permit the conclusion of leases as a method of retirement.[13]

The Functions of Tenancy

With reference to the functions of tenancy, one often finds the statement that tenancy enables the passing of the land to the best farmer; in particular, many poor, but efficient, farmers are supposed to become farm operators by means of tenancy. This opinion probably was correct in earlier times, but today tenancy fulfills such a function only in a very limited sense.[14] The farm-credit system in Germany, which was very efficient and which was once called by an American committee the best in the world, fulfilled similar functions until 1933. It enabled many poor, but efficient farmers to acquire land and implements. A tenant does need some capital. As a rule, he has to take over implements and, occasionally, also buildings. A new tenant has to pay cash for the livestock, equipment, stocks of fertilizer, and whatever else he may find on the farm. It is either the landlord or the predecessor who demands these payments and, in addition, landlords often ask for a security payment and the like. "Thus the farmer, if he rents a farm, needs as much cash as he does for buying an equal-sized holding, and often he needs much more." These opinions may be slightly exaggerated; however, they have been advanced by Professor Aereboe, the most realistic student of German farming who is very familiar with existing conditions. Furthermore, he has pointed out that the main function of tenancy is to "permit the estate owners, who do not know farming, to use the knowledge and ability of the generally efficient tenantry . . . Thus the latter is an important means of maintaining the status of the large landowners."[15] However, with regard to the many lands held by public authorities and the like, farm tenancy is the best method of using them, as long as the authorities regard it as necessary to hold the land. Administration and management by the authorities themselves often failed.

Where the renting of whole farms is done for personal reasons of the landlord, a capable farmer without money may occasionally become a farm operator. Thus the main function of farm tenancy rests upon supplementary renting of bare land. This function serves highly useful purposes, but it also increases the dependence of the tenant upon the landlord. As for the great majority of German farmers, additional renting is the only thing which could be compared with the "agricultural ladder" in the United States.

A special type of tenancy should be mentioned—namely, the work lease which is an allowance in land given to farm hands on the large estates. The Nazis have applied the work lease on a large scale in order to establish more paternalistic bonds between estate owners and farm hands, and in order to keep the latter on the farm. We cannot deal here with this type of remuneration but shall pass on to the measures applied to farm tenancy by the government.

Protective Legislation

Before we deal with the new measures brought about in the Nazi regime, we shall briefly discuss what has been done by former governments. Since 1920 a system of protection was established which safeguarded the tenants against harsh eviction and against the evils of

[13] Sauer, Erbhof und Pacht, *Recht des Reichsnährstandes*, 1936, p. 287. Cf. Spiegel, "The Altenteil—German Farmers' Old Age Security," 4 *Rural Sociology* 215–6 (1939).

[14] In connection with the following passages, see Aereboe, *op. cit.*, pp. 203–6.

[15] Aereboe, *op. cit.*, pp. 206–7.

rackrenting. This was not the result of particularly vicious tenancy conditions, but a consequence of the currency inflation after the War which disturbed the landlord-tenant relationship, since the landlords were forced to shorten the term of the lease and frequently to change the amount of rent in order to follow the rapid decrease in the value of money. We must remember that there were virtually only flat cash rents in Germany. Many landlords had recourse to rents in kind or in money expressed in commodity prices. Later on, the rents again became flat cash rents.

Originally intended as a temporary measure, the legislation has been renewed time and again. Special courts which are formed by one jurist and by representatives of the landlords and tenants were authorized to adjust the rents to the changing conditions, and to annul notices of eviction. It should be emphasized that the first provision benefited tenants and landlords as well.

Farm Tenancy under the Swastika

Tenants of farms larger than 300 acres (125 hectares) were made exempt from the protection in 1934 because their position, by then, had greatly improved. They had suffered more from the decline in prices than had the small tenants who raise crops for their own use only and do not depend so much upon hired men and machinery. The increase in farm prices and the cancellation of debts had bettered the situation of the large-scale tenants, who enjoy a long lease term. Even if they must leave the farm, they will find another much easier than will the small tenant. There is a large enough supply of big farms the owners of which are often occupied in new positions in the army, the party, or the government. On the other hand, the supply of small- and middle-sized farms is scarce, and an abolition of the protective measures would have resulted in mass evictions because of the desire of the landlords to get higher rents. It has been said, "changes in the management of rented farms are now particularly undesirable . . . , because every change necessarily results in a temporary decrease of the yield . . . "[16]

Besides the partial abolition of the protective measures, the new agrarian policy of the Reich affected the landlord-tenant relationship in various ways. The rent is not only subject to adjustment by the courts, but is controlled also by the Reich Commissioner of Prices who supervises the formation of all prices and brings them in line with the objectives of the Four-Year-Plan which is directed toward economic autarchy. So far the Commissioner has prohibited the raising of rents,[17] and has restricted the auctions of lease contracts.

The two price controls aim at different ends. Whereas the courts purport to settle the conflicting interests of private parties—this was, at least, the underlying conception when the protective measures were enacted—the Commissioner's task is to help achieve the general political objectives by holding down the prices in the face of the growing credit inflation. In addition to that double price control, lease contracts of land of more than five acres and all lease contracts for more than one year of land belonging to an entailed farm may not be entered into without official permit. This permit is necessary for every sale of land as well as for agreements concerning the utilization and transfer of land. Through these permits the government regulates all transactions in land and makes them dependent upon the approval of the local authori-

[16] *Frankfurter Zeitung*, August 13, 1935.

[17] Decree of May 22, 1937, *Recht des Reichsnährstandes*, 1937, p. 452.

ties.[18] Furthermore, tenants, like all farmers, may be dispossessed if they do not live up to the commands of the authorities.[19]

The Model Lease Contract

These four restrictions were supplemented in 1937 by a series of model lease contracts for the three main types of tenancy. The models are prescribed by the powerful Reich Food Estate, and it is expected that they will be used by the great majority of landlords and tenants. Predominance of the model forms is attained through public pressure, such as has already occurred in the case of the urban lease contract where a model form has been substituted for the old contracts.[20] This method is a repetition of the Italian example where "collective contracts" have likewise been decreed. In effect, they convert the landlord and tenant into public functionaries. What is valuable in these German model contracts has been taken from the plans for a permanent tenancy reform discussed since the War. The government had issued a draft of a new farm tenancy law in 1930, but because of the political unrest during the following years this draft never became law. In many instances, its proposals were based on the English reforms, which, meanwhile, had been partially incorporated into the Swedish legislation. Most of the proposed provisions were of a compulsory nature. Moreover, where the landlord refused to consent to certain acts, as, for instance, to the making of improvements, the tenant, in his place, could be authorized to make them by a court decree which was based on vague rules, such as "principles of good husbandry," and the like.

The new contracts are not law. They have been drafted by the Reich Food Estate which is authorized to regulate the social and economic relations between all agriculturists. The contracts are stronger than a law which could be modified by an agreement of the parties. On the other hand, the disadvantages of compulsory legislation are avoided, for the provisions of the model contracts can be changed in special cases.

According to an authoritative source, the model contracts are to be regarded as "an important advance in the battle of production."[21] The individual landlord-tenant relationship is not regarded any more as a balance of private interests, not as "regulated conflict," but as a regulation within the framework of collective order. The goal of the totalitarian state expresses itself even in the contractual relationship of private law, and the parties to such contracts have to adjust their intentions to the uniform regulation enacted by the state.[22]

There are three such model contracts. The one (Model A) is used for the temporary lease of an entailed farm, the other (Model B) for that of another farm, and the third, for the lease of parcels and tracts of land. All contracts have a motto which briefly expresses the new ideas. The motto of the lease contract of an entailed farm reads as follows:

"The German people, for the sake of their maintenance, need a healthy peasantry in healthy units of life. Blood, soil, and labor, in organic cooperation, shall cooperate on the entailed farms and be responsible to the whole people. However, if it becomes necessary to separate temporarily labor and land

[18] Grundstücksverkehrs-bekanntmachung, January 26, 1937.

[19] Verordnung zur Sicherung der Landbewirtschaftung, April 23, 1937.

[20] H. W. Spiegel, Der deutsche Einheitsmietvertrag im Lichte der Rechtsvergleichung, *Zeitschrift für Schweizerisches Recht*, 1936, pp. 293 ff.

[21] Sauer, Pachtpolitik in der Praxis, *Recht des Reichsnährstandes*, 1937, pp. 616 ff. In the following analysis ample use is made of this authoritative statement of policies.

[22] Hans Merkel, Grundfragen des ständischen Rechts, *Zeitschrift für die gesamte Staatswissenschaft*, 1937, v. 97, p. 602.

ownership by means of renting the entailed farm, then social justice in the conditions of the lease contract and a just rent are necessary to maintain the tenancy peace within the general order of the people, the estate, and the land. This will possibly increase the productive capacity of the entailed farm, as is due to the community. It is likewise necessary to return the farm intact to the family when the lease term has expired."

Thus landlord and tenant are joined by a community of duties which have to be fulfilled so that the ends of the national policy may be attained. These ends concern, in the main, the increase of agricultural output.

The lease term has been extraordinarily lengthened. To be sure, lease terms were much longer in Germany in the past than in this country. If a farm is rented, the term is now 18 years, and the tenant has an option to renew the contract for 18 years more. If single parcels or tracts of land are rented, the term is nine years. Here the tenant has similar options for two succeeding terms of nine years. There are no such options if the landlord or a member of his family wishes to operate the farm or the parcel of land, or if he is entitled to give notice because, for instance, of the tenant's inefficiency or dishonesty.

Another important change is the provision giving the tenant the right to claim compensation for improvements. Compensation has to be given for those improvements which, according to the principles of orderly husbandry, are helpful ameliorations, such as the change of grass land into crop land, drainages, reclamation of waste and swamp land. There are, however, some restrictions to the right to compensation. The improvements still have to represent an increment in value when the lease expires. Furthermore, compensation is given only if the payment can be reasonably expected from the landlord. This is a characteristic feature of the German provisions which cannot be found in the English. Likewise, as in England, the tenant has to inform the landlord of the intended measures. Within two weeks after such information is given, the landlord may ask the District Leader of the Peasantry, an official of the Reich Food Estate, for his intervention. The District Leader then appoints a referee who decides whether or not the improvement may be made.

If the landlord does not ask for intervention at this time, the referee may still decide at the end of the lease term whether or not the improvements are in accordance with the provisions of the contract, and whether or not they deserve compensation. The same referee also estimates the value of the improvements to be paid by the landlord. The provisions of the contract, especially the requirement that payment of compensation is due only if it can be expected from the landlord, are vague enough to render the decision discretionary.

Two years before the lease expires the tenant is entitled to ask the landlord for a security for his compensation. If the landlord does not pay the security, the tenant may retain a corresponding amount of rents.

The provisions regarding compensation for improvements were necessary to enable the tenants to establish silos, and the like. Within the last few years, the number of silos has risen from 19,000 in 1931 to more than 200,000.

There are other provisions of the model lease which, probably, sound somewhat strange. The contract expressly provides that the parties submit themselves to all conditions and changes commanded by the authorities who decide on the validity of the lease. Thus it is somewhat dangerous to enter into a lease contract. The contract might be established in accordance with the in-

tention and the purpose of the contracting parties. However, the authorities to whom the contract has to be submitted may change it at will, and the parties are bound to the changed conditions.

The authorities know that many farmers try to evade the regulations and regimentations by secret agreements not written in the contracts. Thus it is expressly stated in the model contracts that agreements of this type are void.

The rules referring to the formation of rents are laid down in an appendix to the model contracts which fills two large pages. These rules state that each deviation from the standard conditions as laid down in the contracts shall result, respectively, in an addition to, or subtraction from, the rent. If, for instance, the prescribed lease term is shortened in an individual case, the rent will increase, if the shortening benefits the tenant; or it will decrease, if the shortening benefits the landlord.

The standard rent is computed according to the following principles: (1) The rent has to be paid from the net return. (2) Increases in the rent are prohibited. If an exception to this rule is urgently necessary, the Reich Commissioner of Prices must be asked for his permission. (3) The rent, as an economic rent, should be the same percentage of the landlord's investment for the whole country. Family and financial conditions of the individual landlord or tenant should not be taken into account. (4) The rent does not have to take into account demand or supply. Contrariwise, the computation of the rent should be based upon the national-socialist economic order, or upon a rent which has been regarded as reasonable in similar cases by the Reich Food Estate. (5) In determining the rent, accounts of similar farms have to be consulted. Relying only on the account of the concerned farm is prohibited.

In addition, some principles are enumerated which are not regarded as appropriate: (1) the rent which is or was usual in a certain region, inasmuch as it is determined by demand and supply; (2) interest on the purchase price of the farm or on a possible selling price, because the latter does not yet exclusively depend upon the economic value of the farm; (3) a rent which a particularly efficient farmer could pay; (4) where bare tracts of adjacent land are rented, the rent may not take away all advantages which the tenant may receive through the supplementary lease. As we have seen, such supplementary leases often result in a return on the land which is greater than the landlord could get out of it, were he himself to operate the parcel. In conclusion, the regulations state that "the rent, from the point of view of the landlord, is an interest payment on a safe investment: the greater the security, the lower the interest rate."

Thus the tenancy reform of the Nazi regime, which was ushered in by interventionist measures of the preceding republican governments, has a degree of regimentation which can only be explained by the goal of their agricultural policy—i.e., economic autarchy at the cost of the well-being of the people. With reference to the evaluation of farm tenancy, it is regarded as a mere necessary evil, undesirable because of its capitalistic elements and because of the disturbance of the land-peasant relationship, but which cannot entirely be avoided. It may be stressed that neither a tenant nor a permanent landlord can have an entailed farm. Both are, thus, excluded from the village gentry.

Public Utility Valuation by Legislative Fiat

By LIONEL W. THATCHER*

THE past decade has witnessed many attempts by administrative commissions and by state legislatures to simplify and standardize the procedure in determining the value of public utility properties for tax as well as for regulatory purposes. One of the unique and striking pieces of such legislation was the enactment of a public utility valuation law by the Utah State Legislature in 1937. In passing this law the Utah Legislature attempted by one single stroke to solve problems that have baffled the courts ever since the advent of government regulation. In brief, Utah's valuation law provided: (1) that the public utilities of the state should determine their own valuations, and (2) that these utility-determined valuations be adopted by the Public Service Commission as a rate-base, and by the Tax Commission as a tax-base.

Fortunately for the Tax Commission and for the utilities, the state supreme court declared the law unconstitutional within a year after its enactment. The grounds upon which the law was ruled unconstitutional will be discussed later. A law had been passed in 1935 which provided that the Tax Commission was to assess utilities on their book value as used for rate purposes. The Tax Commission was to obtain the value of all utilities upon which they were entitled to earn a fair return, as determined by the Public Service Commission.[1] On two occasions, the Tax Commission attempted to comply with the law by obtaining from the Public Service Commission these property values, but received the information with respect to only five utilities out of some 200 operating in the state. According to the Public Service Commission, the few valuation figures given did not reflect accurately a proper rate-base for any of the utilities.

In the light of this difficulty, the Tax Commission appealed to the attorney-general for an opinion as to whether they were required to assess public service property solely upon the value on which the utility was entitled to earn a fair return, or whether they could use in addition other factors.

In answer to this appeal the attorney-general ruled:

"In the light of the decisions of the courts, the use of the language in said section 80-5-54X, Supra, 'The Tax Commission shall use such information and tangible property values at the time it assesses for tax purposes the tangible property of said companies and such assessments shall be in the same proportion to its true value in money as that of all other tangible property in the State of Utah' shows that the Legislature did not intend any different application than that laid down by the courts of the United States in the decisions above quoted. True, the value of all the tangible properties of the utilities upon which they are entitled to earn a fair return as determined by the State Public Utilities Commission must be a factor in ascertaining the value to be placed upon said property for the purposes of taxation. The language of the statute is not different, in my opinion, than the rule laid down by the courts."

The attorney-general concluded that the Tax Commission could use other factors as well as the rate-base in establishing utility assessed values.

Because of the criticism of the 1935 law, it was amended by the 1937 Legislature. The new act repealed all acts or parts of acts that were in conflict with its provisions. Under the 1937 law, the Tax Commission was to prepare each year a

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[1] Laws 1935, §80-5-54X.

book, called the "Recorded Assessment of Public Utilities," in which was to be recorded the value of the tangible properties of the public utilities within the state. The valuations of these tangible properties were to be obtained from a book, known as the "Record of Valuations of Utility Companies," prepared by the Public Service Commission. These recorded valuations were to be accepted as the "true and actual value of the tangible properties of said utilities in Utah." Moreover, the Tax Commission was required to assess the properties of each public utility from the valuations so recorded *in the same proportion to the recorded valuation as the assessed valuation of other tangible properties similarly assessed bore to their actual value.* The intangible properties were to be assessed by the Tax Commission in the same manner as it assessed the intangible properties of the citizens of the state.[2]

This section of the statute presents a controversy that is fundamental to the whole theory of utility assessment. The question is whether the "value of property" which is set by the above statute as the basis of taxation does mean and should mean the same thing as does the "fair value of the property" which has been prescribed by the courts as the basis of rate control.

The principal reason for the critical importance of this problem is that the interests of the public utility companies are reversed with respect to valuations for these two different purposes. In rate cases, the utilities claim high values; in tax cases, low values. Highly paid and renowned expert witnesses will often support both claims. They will oppose in one case the very kinds of "evidence of value" that are deemed so persuasive in the other.

It has been argued with more or less earnestness that it is unfair for the state to have one valuation for one purpose and another valuation for another purpose. On the surface, it may seem plausible that, when the state has determined a fair valuation as a basis for rate-making, this valuation should also be used for taxation purposes.

The complaint is often heard that something is wrong because the findings of the public service commission and the tax commission do not coincide. Obviously, if the word "value" includes the same elements and means the same thing in both cases, the findings by both bodies should agree; otherwise they need not. It is very essential to inquire, then, whether these two commissions in making valuations are determining the same thing. The problem of condensing into a few pages the essential features of the valuation of public utility properties is a formidable one but is, nevertheless, undertaken in an attempt to show that value for purposes of taxation is different from that involved in rate proceedings. Most authorities on the subject recognize that the same property may have a different value for different purposes. This is quite possible when the word value is used in a different sense and in different connections. Professor Bonbright, in his recent book, says:

> "One important distinction between a valid tax base and a valid rate base is so well recognized that it may be dismissed with a word. The rate base is supposed to correspond to the *full* value of the property used and useful in the public service. But in taxation, the Courts may reduce an assessment to an amount concededly less than full or true value, if the taxpayer can prove that property generally has been systematically under-assessed in the same locality."[3]

For the purpose of taxation, the Utah Tax Commission is required, under Ar-

[2] Laws 1937, c. 100, §80-5-54.

[3] *Valuation of Property* (New York: McGraw-Hill Book Co., Inc., 1937), Vol. 1, p. 518.

ticle XIII, Section 3 of the State Constitution, to find the market value of the utility at the time chosen for the assessment or what it would sell for in the open market under normal conditions, whereas the Public Service Commission is required to find the amount invested in the property or the amount required to replace it in its present condition. Obviously, the latter is not value at all; it is simply the cost, or an amount used for fixing a level of rates which will continue to attract capital into the utility business. The former is the ordinary conception of value as used generally in business or by economists.

The Tax Commission is primarily concerned with the earnings or the yield. A tax assessment may closely approximate the rate-base or may diverge widely from it, in proportion as the return actually realized from it varies from the regulatory standard of return. The Public Service Commission must exclude earnings because that is what they are trying to fix. In rate-making cases, the problem in finding value is not how much can be realized from the property but how much has been actually, honestly, and prudently invested in the property. To consider earning power in determining the value of property in rate cases would involve circular reasoning, since value depends on earning power, and earning power depends upon the rate, and the rate is arrived at by the decision of the Commission.

Every year the property of every utility company must be assessed, whether its rates have been properly regulated or not, and the uniformity rule in the Utah Constitution requires that all property be assessed on the same basis. Therefore, its normal selling or market value is more vital and more persuasive than that the so-called valuations should agree in a particular case.

Many factors condition the equalizing of the two values. If regulation were so perfect that all investments in utility properties were prudently made, if the earnings of utilities were stable, if the same weight were given to elements of value, and if assessments of property were up to the full or true value, the rate-base and tax-base would closely approximate each other. However, these conditions do not exist.

A case in point would be a defunct street railway. Here, the utility is unable to earn a fair return on its investment or the cost of reproducing its system. Hence its rate-base may be much higher than its tax-base. If the Utah Tax Commission were to follow the provisions of the new law and assess the company on a value equal to its rate-base, it would violate the legislative standard of assessment as well as the uniformity rule of the State Constitution.

Many street railway companies have been required to pay for paving between their tracks and to contribute sums to the erection of viaducts. The costs of these improvements have been borne by the companies, yet no material benefits have accrued to them although they benefit the public at large. The stockholders of these companies should be allowed a fair return on their investment, if they can earn it, but it would be unfair for the Tax Commission to take into consideration these items in establishing a fair valuation on their property.

On the other hand, a strong utility which enjoys an unusually favorable monopolistic location, or if there is failure or even slowness on the part of the regulatory commission to reduce rates to the point of reasonable costs of service, may present exactly the opposite position. In this case the capacity to earn is the result of its favorable position, ex-

cept for the amount attributable to management, and might be passed on through some transaction to another company unless partly recovered through taxes.

At least from an administrative point of view, if not theoretically, it seems clear that the rate-base and the tax-base are two different concepts and cannot be reconciled by legislative fiat.

As was mentioned above, the section of the law relating to valuation for rate-making purposes practically gave the utilities the power to determine their own valuations. Under the 1937 law, before the first of December of each year, the Public Service Commission was to furnish every public utility doing business in the state with blank forms upon which they were to state the valuation of all their properties. All tangible and intangible properties were to be listed separately and at their full values. In reporting these values, the utilities were permitted to take into consideration the increases or decreases in property values during the preceding tax year. The blank forms provided for whatever segregation or division of values of properties the Commission required.

Each report returned to the Commission was to be accompanied by an affidavit signed by a duly qualified officer of the utility, stating that the figures presented were the true values of the properties as of the said date.

The Public Service Commission was, furthermore, to prepare each year a book, called a "Record of Valuations of Utility Companies," in which were entered the names of every individual, organization, or corporation engaged in any utility business in the state, together with the valuation of the tangible and the intangible properties as sworn to in the blank forms and on file with the Commission.

The most striking section of the 1937 act and the section open to the most criticism reads:

"The Public Service Commission shall accept the values filed as provided herein unless otherwise changed by the Commission upon evidence taken by and filed with the Commission as the true values of the tangible and the intangible properties of said public utilities and said last declared values shall be the value upon which said utility might earn a fair return. *Under no circumstances shall an increase in the rates of any public utility be found justified by the Commission if said increase shall result in an earning by said utility of an amount greater than a fair return on the value of the properties . . . as shown on the forms provided.*"[4]

In essence, this law not only permitted the utilities of Utah to make their own assessments, but it placed the burden of proof as to the correctness of the valuation upon the Commission rather than upon the utilities. What was to stop the utilities from placing any value they saw fit? True, the Commission was given power to change the valuation after a hearing, but the Public Service Commission would have to prove the excessiveness of any recorded valuation. Moreover, the staff of the Utah Commission was far from adequate to cope with such a problem within the short period of time elapsing between the date the returns were filed with the Public Service Commission and the date for submitting the information to the Tax Commission. One might argue that the utilities were limited in their attempts to overvalue their properties because the higher the rate-values the higher the tax-values, and hence the higher the tax-expense. But taxes are ordinarily treated as an expense item. Therefore, the utilities would recover the added expense if the market permitted. Likewise, it could be argued that the incentive for a high rate of return would stop any undervaluation.

[4] Laws 1937, c. 87, §§74-4-21 and 74-4-21X.

Anyone familiar with valuation practices knows that, in normal times, a utility will gladly pay a greater sum in taxes if it is permitted to inflate its valuation, because the ratio of return is far in excess of the amount paid out in taxes. On the other hand, during periods of depression when the marginal demand price of the consumer is at the point where an increase in rates is impossible and the rate of return to the utilities has fallen far below a reasonable return, great reductions will be made in utility valuations in order to escape the heavy tax burden without affecting earnings. The few reports filed with the Public Service Commission before the act was declared unconstitutional bear out this statement.

Even if it were admitted that the state could, by taxation, recover the increased profits of an overvaluation, the problem of an overcharged group of rate-payers still remains. From a strict application of the principle of "justice in taxation," it is questionable whether the utility customers should be charged higher rates merely in order to increase the tax revenues of a state.

There was some doubt as to whether or not all utilities operating in Utah were subject to the provisions of the act by reason of the language to the effect that forms should be forwarded each year to " . . . every utility doing business in the State of Utah whose rates are based on the valuation of its properties or the amount of its investments. . . ." The inference seems to be that any public utility or class of utilities whose rates were not based on the " . . . valuation of its properties or the amount of its investment . . . " was not subject to the act. Inasmuch as the Public Service Commission has never attempted to ascertain the value of interstate telephone lines or interstate railroad lines, it is a question as to how the Tax Commission would have obtained such a valuation under the new law.

In addition to the above criticisms, several administrative difficulties are involved. The act provided for a separate listing of the tangible and intangible properties in the return to be filed with the Public Service Commission. Inasmuch as the Tax Commission must exclude the value of intangible property from its assessment value, a definite interpretation of what was intangible and what was tangible property suitable for the Tax Commission as well as the Public Service Commission would have been necessary before proceeding under the law.

Had the law remained on the books, one avenue was open to the Commission which would have aided in keeping the valuations of a utility close to a true value or to the original cost of the properties and without increase in expense to the Commission. The law stated that the Commission could provide for whatever segregation or division of the value of the properties it desired. Under the classification of accounts, the Commission could force the electric utilities to break down their property accounts into detailed items and then call upon the Federal Power Commission for advice as to whether the said valuations were in line with valuations in other utilities. The Federal Power Commission will extend that service to a state commission where there is such a need and when it is reimbursed for the cost of its investigation. After once arriving at the "fair value" for property already in use, the task of evaluating the new constructions and additions would not have been so difficult.

The motive of the Legislature in passing the laws pertaining to valuation—namely, to stop the utilities from seeking a low valuation for tax purposes and a

high one for rate-making—was praiseworthy. But instead of correcting the evils, or in correcting one evil, it added several others. To permit a public utility to determine its own valuation necessarily injects a certain amount of suspicion and hostility into the atmosphere of public utility administration. With its small staff and limited funds, it would have been impossible for the Utah Public Service Commission to ascertain the correctness of valuations made under provisions of the 1937 law.

As has already been stated, the constitutionality of the act was soon challenged. The state supreme court, in deciding the case,[5] was concerned with two questions: (1) did the Legislature direct an assessment for taxation upon a basis other than the value of the utility property in money as required by Article XIII, Section 3 of the State Constitution; (2) may the Legislature itself make the valuation of utilities or vest the power of making such valuation in any officer or commission other than the Tax Commission? In answering these questions, the supreme court held that the Legislature by the enactment of this law did not prescribe a definite rule to guide the commissions in the valuations of utility property. No uniform method of assessment was made, to the end that every utility should pay a tax proportionate to the value of its tangible property. The Legislature had merely said that a valuation for rate-making purposes should be used for tax purposes. The court concluded that the State Constitution conferred on the Tax Commission the power of assessment, which included the fixing of valuations on utility property and that this particular duty and power could not be exercised by the Legislature or be conferred by the Legislature on any "other officer or board." Therefore, Chapters 87 and 100 of Laws of Utah, 1937 were declared unconstitutional.

[5] *State ex rel. Pub. Serv. Com. v. Southern Pac. Co.*, 95 Utah 84 (1938).

Urban Land Department

MORTON BODFISH, *Editor*

1939 Amendments to the National Housing Act

CHANGES in the National Housing Act, authorized by amendments enacted by the 76th Congress and approved by the President in June, affect every phase of the Federal Housing Administration's insuring operations.

Title I of the Act, which provides for insurance of modernization and repair loans, has been extended to July 1, 1941. The maximum loan is limited to $2,500, the maximum maturity to 3 years and 32 days, and the insurance made available to each institution after July 1, 1939 is limited to 10% of the total amount of such loans made. An insurance premium has been established for the first time since loans of this type have been made available for insurance. This premium is to be paid by the lending institution, and may not be added to the amount charged to the borrower. The premium charge may not exceed ¾ of 1% per annum of the net proceeds of Title I loans. The provision for insuring "catastrophe" loans was repealed; such loans are now included under the same provisions as apply to other modernization and repair loans.

The amendments affecting Title II of the Act pertain to both the insurance of mortgages secured by one- to four-family structures and to those secured by large-scale or rental housing projects.

With respect to the loans authorized by Section 203 of the Act, the following main changes should be noted:

1. The maximum aggregate principal amount of mortgage insurance outstanding under Title II was limited to $3,000,000,000 and the President was given authority to extend this amount to $4,000,000,000.

2. Authority to insure mortgages secured by existing properties (mortgages "that cover property the construction of which was completed more than one year prior to the date of the application for insurance") was extended to July 1, 1941. After this date the only mortgages secured by existing construction which are eligible for insurance will be those which have previously been covered by an insured mortgage.

3. Mortgages secured by existing construction may not exceed 25% of the total authorized amount of mortgage insurance remaining after June 3, 1939.

4. The Administrator's authority to insure new-home mortgages (built under FHA inspection) representing as much as 90% of property values with maturities of from 20 to 25 years has been extended indefinitely. Such mortgages apply only to new single-family owner-occupied houses in amounts up to $5,400.

5. The provision allowing a portion of the foreclosure cost (not exceeding $75 or 2% of the unpaid balance of the mortgage, whichever is smaller) to be included in the debentures in exchange for property was extended to July 1, 1941. However, this provision applies only to mortgages secured by the type of property described in the immediately preceding paragraph and then only if the principal has not been reduced by as much as 10% of the appraised value of the property.

6. The ¼ of 1% insurance premium applicable to certain mortgages was abolished, and hence all mortgages insured after July 1 will bear an insurance premium of ½ of 1%.

7. A provision was added to the effect that any contract for insurance executed by the Administrator shall be conclusive evidence of the eligibility of a mortgage for insurance.

8. Another amendment provides that no mortgage insurance shall be issued in cases where the mortgage partially or wholly refinances an existing mortgage, unless the mortgagor certifies that the holder of such a mortgage failed or refused to make a loan of like amount and under as favorable terms as those offered by an insured mortgage. The relative favorableness of the two contracts must be determined "after taking into account amortization provisions, commission, interest rate, mortgage insurance premium, and costs to the mortgagor for legal services, appraisal fees, title expenses, and similar charges."

9. A clarifying amendment was added

with regard to the calculation of the value of mortgages for the purpose of insurance payments.

10. Another amendment was added which facilitates the conveyance of titles to properties which the Administrator has acquired.

The amendments which affect the insurance of rental housing projects under Sections 207 and 210 involve three main types of considerations. First, provision was made for repealing Section 210 of the Act which allowed the insurance of mortgages on housing developments involving 10 or more units with mortgages ranging from $16,000 to $200,000. The second major change provided that the builder of a project must certify that he has not paid less than local prevailing wages, as determined by the Secretary of Labor, to the laborers and mechanics employed in the construction of a housing project insured under these sections of the Act. Third, certain amendments were inserted which clarified the policy of the FHA in regard to mortgages secured by large-scale rental housing projects. Specifically, the principal obligation in no case may exceed $5,000,000 nor $1,350 per room, nor 80% of the value of the project; "Provided, That such mortgage shall not in any event exceed the amount which the Administrator estimates will be the cost of the completed physical improvements on the property or project, exclusive of the following: Public utilities and streets; taxes, interest, and insurance during construction; organization and legal expenses; and miscellaneous charges during or incidental to construction; . . . ."

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Notes on the "100 Per Cent" Concept in Retail Location Analysis

A PERUSAL of the literature in trade and technical publications on the subject of retail site selection and analysis reveals a considerable confusion in concepts and terminology. In particular, the variable and nebulous connotations assigned by authors to the expressions "100 per cent location" and "100 per cent district" are painful in their ambiguity.[1] For example, here are a number of definitions which illustrate attempts to give solidity to the amorphous:

"The '100% location' is determined . . . by the point of densest shopping traffic."[2]

"The '100% district' is easily found, for it is a definitely circumscribed area . . . where the greatest amount of retail trade is transacted."[3]

"A 100% location or district has been expressed in various ways on various occasions as:

(A) A definitely circumscribed area in a community where women do most of the shopping.
(B) The business section of a community where the greatest amount of retail trade is transacted.
(C) That spot in a community where a merchant can render the greatest service and reap the greatest profit.

"All of these definitions, I believe, are directly related to one another, and also to the fact that women spend approximately 85% of the family income."[4]

The definitions of 100 per cent locations fail to throw much light on the subject, for each one is either inexact or incomplete. For example, we may not properly designate the "point of densest shopping traffic" as the 100 per cent location without knowing the characteristics of this traffic. This is explained by Mr. Levy as follows:

"... the practice of clocking the number of pedestrians passing a given location was for a time regarded as a reliable numerical standard upon which to base an estimate of the number of purchasers which might be attracted to the merchandise contemplated to be sold in that location. More recently it has been recognized that, in order to make such a pedestrian count of value to a prospective merchandising organization, it must be carefully analyzed in the light of the type of pedestrian, his or her ultimate destination, and, most important, whether the pedestrian be man or woman."[5]

The location where a merchant "can render the greatest service and reap the greatest profit" describes only the 100 per cent location for a particular retail type.

The definitions for 100 per cent districts are little better. Shopping areas frequented predominantly by women include most of the retail districts in the community, even the corner where the neighborhood grocery

[1] In this context, the word "location" is synonymous with "site," whereas the word "district" carries the usual connotation of an area.

[2] Quoted in *Selecting Locations for Retail Stores*, Metropolitan Policy Holder's Service Bureau, p. 30.

[3] *Ibid.*, p. 29.

[4] Mark Levy, "One Hundred Per Cent Locations," 3 *Journal of Real Estate Management* 292 (February, 1938).

[5] *Ibid.*, p. 291.

store is located. And it has been demonstrated that the "greatest amount of retail trade" in the aggregate is done in outlying areas, and not in the downtown shopping district, where the 100 per cent area is presumed to be situated.[6]

The 100 per cent concept is undoubtedly useful in retail location analysis. There is need for qualitative description of retail districts, and for a descriptive expression to identify the "best" location or district. But a confusion of concepts and terms exists, for the "best" or "100 per cent" may represent the highest position in one of several hierarchies. For instance, the 100 per cent location may be either the best location in the district for a particular retail type, or it may be the locus of the highest ground rent and land value. The 100 per cent district or block may be either the high-rent area, or the district where the women's shopping goods outlets are concentrated, although these two districts usually coincide. The 100 per cent district is certainly not "definitely circumscribed" in most cities. It is not usually the case that along the major retail street there are sharp and sudden changes in the character of the retail types and in land values. Typically, the rent contour takes the form of a pyramid. The situation is further complicated in some areas by the presence of multiple rent peaks.

In terms of rent-paying capacities, there are a number of hierarchies with which the retail site analyst must be concerned, and which require careful distinction. For a given site, there is a hierarchy of retail types based upon their ability to exploit the location. For a given retail type, there is a hierarchy of sites based upon their appropriateness for that retail type. Within the retail district there is a hierarchy of rents pyramiding geographically from the locus of the highest rent. And, finally, for the retail types in the district, there is a hierarchy of types based upon relative rent-paying capacity in their most appropriate locations. The existence of these various hierarchies points to the need for a more descriptive terminology. For instance, to replace the more convenient but misleading "100 per cent" expression, the following phrases might be employed as appropriate: "100 per cent location for shoe stores (or whatever retail type)"; "point of highest ground rent"; "retail type of greatest rent-paying capacity in this location"; "retail type of greatest rent-paying capacity among all the retail types in the district"; and "area or block of highest ground rents."

The general assumption that the so-called 100 per cent districts can be delimited with considerable definiteness implies the existence of characteristics which are common to all 100 per cent districts and by which their limits may be determined. In an attempt to discover these common characteristics, a comparison has been made of twenty 100 per cent districts as defined by a prominent Realtor who has been active in chain store leasing.[7] The first step was to compare the sizes of the districts in terms of number of retail outlets, according to the populations in the respective metropolitan areas (Table I). The range is from 2,319 persons per store in Tulsa, Oklahoma, to 37,973 persons per store in Cincinnati, Ohio. When the cities

TABLE I. RETAIL STORE AND POPULATION DATA FOR 18 SELECTED CITIES ARRANGED IN ORDER OF SIZE

City	Number of Retail Stores in District	Population of Metropolitan Area	Number of Persons per Retail Store
Detroit, Mich.	99	2,104,764	21,260
Pittsburgh, Pa.	76	1,953,668	25,706
Cleveland, Ohio	63	1,194,989	18,968
Providence, R. I.	37	963,686	26,046
Baltimore, Md.	168	949,247	5,650
Buffalo, N.Y.	82	820,573	10,007
Cincinnati, Ohio	20	759,464	37,973
Milwaukee, Wis.	79	743,414	9,410
Washington, D. C.	110	621,059	5,645
Kansas City, Mo.	72	608,186	8,447
Seattle, Wash.	24	420,663	16,826
Birmingham, Ala.	39	382,792	9,815
Portland, Ore.	37	378,728	10,235
Atlanta, Ga.	20	370,920	18,546
Dayton, Ohio	66	251,928	3,817
Grand Rapids, Mich.	56	207,154	3,699
Tulsa, Okla.	79	183,207	2,319
Flint, Mich.	65	179,939	2,768
Average	66.2	727,466	13,174

[6] I. K. Rolph, "The Location Structure of Retail Trade," *Domestic Commerce Series*, No. 80, U. S. Bureau of Foreign and Domestic Commerce; United States Department of Commerce, *Intra-City Business Census Statistics for Philadelphia, Pennsylvania*, Bureau of the Census, May, 1937, prepared under the supervision of Malcolm J. Proudfoot, Research Geographer, p. 25, quoted in Richard U. Ratcliff, "The Problem of Retail Site Selection," *Michigan Business Studies*, Volume IX, No. 1 (Ann Arbor: University of Michigan, School of Business Administration, Bureau of Business Research, 1939), p. 15.

[7] Levy, *op. cit.*, p. 291.

TABLE II. PERCENTAGE DISTRIBUTION BY TYPE OF OUTLET FOR RETAIL STORES

Retail Type	City								
	Detroit, Mich.	Pittsburgh, Pa.	Newark, N.J.	Cleveland, Ohio	Providence, R.I.	Baltimore, Md.	Buffalo, N.Y.	Cincinnati, Ohio	Milwaukee, Wis.
Variety	4.0%	5.3%	6.3%	7.9%	5.4%	3.0%	6.1%	15.0%	6.3%
Shoes	19.2	13.2	13.5	12.7	13.5	10.1	14.6	30.0	17.7
Women's clothing	18.2	11.8	9.4	14.3	21.6	10.7	24.4	15.0	13.9
Drugs	4.1	5.3	4.2	1.6	—	2.4	4.9	5.0	5.1
Jewelry	4.0	1.3	3.1	1.6	2.7	3.6	6.1	—	2.5
Millinery	4.0	9.2	7.2	3.2	—	4.1	2.4	5.0	2.5
Restaurant	5.1	2.6	8.3	6.3	2.7	6.5	1.2	—	7.6
Department	4.0	2.6	3.1	7.9	2.7	6.5	7.3	10.0	2.5
Men's furnishings	5.1	5.3	11.5	1.6	2.7	—	2.5	—	8.9
Candy	3.0	1.3	1.1	3.2	5.4	5.9	2.5	—	3.9
Cigars	2.0	4.0	1.0	1.6	2.7	0.6	1.2	—	—
Theater	—	4.0	3.1	1.6	5.4	2.4	2.4	—	1.3
Hosiery	5.1	1.3	3.1	4.7	—	0.6	1.2	—	—
Bank	—	—	1.0	1.6	—	1.2	7.3	—	—
Haberdashery	1.0	—	2.1	—	2.7	0.6	—	—	—
Shoe repair	—	—	—	1.6	—	1.8	—	—	1.3
Florist	1.0	—	—	—	2.7	—	1.2	—	—
Music	1.0	—	1.0	—	—	—	—	—	1.3
Grocery	—	4.0	—	1.6	—	—	—	—	—
General market	—	1.3	—	—	2.7	0.6	—	—	—
Furs	—	—	2.1	1.6	—	3.6	—	—	—
Food specialties	—	1.3	—	—	—	—	—	—	—
Children's wear	—	1.3	1.1	—	—	—	—	—	—
Bakery	—	—	—	1.6	—	—	—	—	—
Radio	—	—	—	—	—	1.8	—	—	—
Furniture	—	1.3	—	—	—	4.2	—	—	—
Dry goods	—	—	—	1.6	—	0.6	—	—	—
Tailor	2.0	—	—	—	—	—	—	—	—
Barber	—	—	—	—	—	—	—	—	—
Wall paper	—	—	—	—	—	0.6	—	—	—
Delicatessen	—	—	—	—	—	0.6	—	—	—
Cleaner	—	—	—	—	—	0.6	—	—	—
Hardware	—	—	—	—	—	—	—	—	—
Billiards	—	—	—	1.6	—	—	—	—	—
Bottling works	—	—	—	—	—	—	—	—	—
Miscellaneous	16.2	19.7	17.7	17.4	27.1	24.2	11.0	20.0	20.2
Vacant	1.0	3.9	—	3.2	—	3.0	3.7	—	5.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

are arranged in order of size, there is some indication of a tendency for the larger cities to have fewer stores in proportion to size than the smaller cities. This tendency suggests that in the larger cities the outlying retail districts may be more important than in the smaller communities. It may also be true that the central retail districts in the larger cities are more mature in structure and more readily identifiable. However, the wide variation in the relative sizes of these 100 per cent districts may simply reflect those inherent difficulties of delimitation which have already been mentioned.

If the 100 per cent district concept is a definite and usable one, it might be assumed that some similarity exists in the composition of the various districts, in the retail types represented, and in the proportioning of these retail types. Table II presents the facts on the composition of the 20 districts in terms of the percentage distribution of retail types. With few exceptions, the following retail types are represented in each district: drugs, women's clothes, jewelry, shoes, department stores, men's furnishings, variety, millinery, and restaurant. These uses are characteristic of the women's shopping area, and it may be concluded, therefore, that each district, as defined, includes the women's shopping area. However, the great variation in other types included in the district, and the differences in the proportion of the total uses represented by the

COMPRISING THE 100 PER CENT DISTRICTS OF 20 SELECTED CITIES

City											
Washington, D. C.	Kansas City, Mo.	Seattle, Wash.	Birmingham, Ala.	Portland, Ore.	Atlanta, Ga.	Oakland, Calif.	Dayton, Ohio	Grand Rapids, Mich.	Tulsa, Okla.	Flint, Mich.	All Cities
1.8%	6.9%	8.0%	10.2%	2.7%	25.0%	1.7%	9.1%	7.1%	3.8%	7.7%	5.7%
15.5	16.6	8.0	15.4	13.5	5.0	10.3	7.6	14.2	12.7	9.2	13.5
15.5	13.9	—	10.2	21.6	10.0	10.4	7.6	3.6	11.4	15.4	13.2
5.5	4.2	8.0	5.1	2.7	5.0	3.5	6.0	5.3	5.0	4.6	4.2
3.7	5.5	4.0	5.1	8.1	—	6.9	7.6	5.3	8.9	7.7	4.5
2.7	4.2	—	5.3	8.1	5.0	1.7	9.1	3.6	2.5	3.1	4.2
6.3	1.4	12.0	5.1	8.1	—	1.7	7.6	3.6	3.8	1.5	4.9
0.9	—	16.0	2.6	5.4	—	1.7	3.0	3.6	1.3	4.6	3.9
5.5	12.5	—	10.2	—	15.0	3.5	9.1	7.1	13.9	7.7	6.2
1.8	2.8	—	—	—	—	1.7	3.0	1.8	—	7.7	2.7
0.9	—	4.0	—	—	—	5.2	1.5	3.6	—	—	1.3
2.7	4.2	—	—	—	—	3.5	1.5	—	2.5	3.1	2.2
—	2.8	—	2.6	—	—	—	1.5	1.8	2.5	—	1.6
0.9	—	—	2.6	—	—	1.7	—	3.6	1.3	1.6	1.3
1.8	—	—	7.7	—	—	3.5	—	3.6	2.5	1.6	1.3
—	1.4	4.0	—	—	5.1	1.7	—	3.6	1.3	1.5	1.0
1.8	2.8	—	—	2.7	—	—	—	1.8	—	—	0.7
—	—	—	—	2.7	—	—	—	—	2.5	1.5	0.5
—	1.4	—	—	—	—	—	—	1.8	—	—	0.4
—	—	—	—	—	—	—	1.5	—	—	—	0.3
0.9	—	—	—	—	—	—	—	—	—	—	0.7
—	—	12.0	—	—	—	1.7	—	—	—	—	0.4
—	—	—	—	—	—	—	—	—	—	—	0.2
0.9	—	—	—	—	—	—	—	—	—	—	0.2
0.9	—	—	—	—	—	—	—	—	—	—	0.3
—	—	—	—	—	—	—	—	—	1.3	—	0.7
—	—	—	—	—	—	—	—	—	6.3	—	0.5
—	—	—	—	—	—	1.7	—	—	—	—	0.2
—	—	—	5.1	—	5.0	—	—	—	—	—	0.2
—	—	—	—	—	—	—	—	—	—	—	0.1
—	—	—	—	—	—	—	—	—	—	—	0.1
—	—	—	—	—	—	—	—	—	—	—	0.1
—	—	—	—	2.7	—	—	—	—	—	—	0.1
—	—	—	—	—	—	—	—	—	—	—	0.1
—	—	—	—	—	—	1.7	—	—	—	—	0.1
27.3	13.9	12.0	12.8	21.7	20.0	36.2	18.2	21.4	11.4	20.0	19.7
2.7	5.5	—	—	—	5.0	—	6.1	3.6	5.1	1.5	2.7
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

various types, suggest that the basis for bounding the districts was not uniform. For instance, the range in the case of variety stores is from 1.7% to 25.0% of the total; in the case of department stores, from 0.9% to 16.0%; women's clothes, from 3.6% to 24.4%; and shoes, 5.0% to 30.0%. Such wide variation in the proportioning of the uses in the several districts suggests that it would be difficult to generalize with respect to the composition of the 100 per cent districts as outlined.

The conclusions to be drawn from this statistical analysis of the 100 per cent districts as outlined by Mr. Levy are largely negative. Apparently it is not possible to define these areas in terms of number of retail outlets in relation to population nor in terms of proportions of retail types. The lack of similarity in the characteristics of the districts suggests either that the bases of definition were inconsistent, or that the concept of the 100 per cent district is nebulous and diffused. The latter explanation is the more likely. At best the delimitation of a 100 per cent district is a matter of individual opinion and reflects an individual concept. It might be less misleading to refrain from attempting to define geographical limits where no definite limits exist, and to be satisfied with locating the magnetic pole or point of highest ground rent.

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Community Attack on Soil Erosion

BANDING together in their own communities to achieve objectives primarily local, American farmers in 24 states are, at the same time, setting in motion what promises to be a thorough-going, nation-wide attack on one of their most important problems—erosion of the soil. This particular problem is generally considered by farmers, agricultural workers, and many leaders in other lines of business to be the result of past misuse of the land. It is also generally recognized today that the solution of this problem is dependent on unified action—action based on sound thought and effective planning. This is no exclusive white-collar job. In planning and action, the men on the firing line—the farmers themselves—play the chief part.

The vehicle for this attack is the state soil conservation districts law enacted so far by the legislatures of the following 36 states: Alabama, Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Vermont.[1] At the wheel of this vehicle in each of the 36 states is an administrative and advisory group made up of representatives of the leading agricultural agencies of the state. This group, as established by law, is called the state soil conservation committee.

These state laws provide for carrying on a soil- and water-conservation program through soil conservation districts as subdivisions of the state government. The laws in the various states also prescribe definitely the procedures to follow in the organization and creation of soil conservation districts. Since the provisions of these laws have already been described in these pages,[2] it is not necessary to go over that ground again.

The Procedure

A soil conservation district, through its governing body of five supervisors, may exercise two types of powers:[3] (1) assist farmers and ranchers in adopting and carrying out appropriate measures and practices for conservation of soil and soil resources and for prevention and control of soil erosion; and (2) adopt land-use regulations providing for erosion prevention and control if and when the farmers and ranchers in the district desire. At least a majority of the farmers voting in a district must vote in favor of ordinances imposing land-use regulations before they can be adopted and enforced by the supervisors of a district.[4] Furthermore, the ordinances apply only where neglect on a farm is causing damage or hindering conservation treatment on adjacent lands (e.g., where improper water disposal is creating silt and erosion hazards on neighboring property). Any farmer voicing a grievance against enforcement of such regulations may have recourse through a board of adjustment as established by the soil conservation districts law, or finally through the courts.

Practices directed toward conservation of soil and soil resources are carried on in a cooperative way for the benefit of the farmers of the district as a whole, much in the same way as county roads are constructed or schools are operated for the benefit of taxpayers. However, *a soil conservation dis-*

[1] Enacted by legislative sessions in Alabama, Idaho, Iowa, Montana, Oregon, Tennessee, Texas, Washington, West Virginia, and Vermont in 1939, and in all other states in 1937 and 1938.

[2] See David H. Allred, "Districts for Soil Conservation," 14 *Journal of Land & Public Utility Economics* 91–4 (February, 1938).

[3] This and other discussions herein with reference to provisions of a soil conservation district law are not taken from any specific law as enacted. Slight variations occur in the soil conservation districts laws of the different states. Most of them are patterned, however, after "A Standard State Soil Conservation Districts Law," prepared by the United States Department of Agriculture, Soil Conservation Service.

[4] Some states require ⅔ majority, and even a greater majority in a few, before supervisors can enact and enforce land-use regulations. See Albert Lepawsky, "The Farmer Practices Public Administration," 27 *National Municipal Review* 485–9 (October, 1938).

trict cannot vote bonds or levy taxes.[5] Provisions are made for a district to accept assistance from state and federal agencies in carrying on its program. State appropriations are made in some states to further the work.

Progress to Date

One hundred and fifty-five soil conservation districts, involving approximately 85,000,000 acres of land, had been created in 24 states prior to June, 1939.[6] The district laws in many of the other states have not been in effect long enough to permit complete organization of districts. One hundred and sixty-two districts have been determined practicable and feasible, and 231 have been determined as needed by the various state committees. Many more petitions are pending. Thousands of farmers on millions of acres see the value of the district approach to their individual problems; consequently, the district pattern over the entire country is steadily changing and growing.

It is estimated that more than 200,000 farmers have attended educational group meetings to consider the creation of soil conservation districts and matters pertaining to district operation. In the 215 districts for which referenda have been held, there are approximately 418,000 eligible voters. More than 113,600 farmers have actually voted, with 90,774 "for" and 22,873 "against" creation of districts. In Arkansas, farmers have cast a total of 14,796 votes in 16 referenda on the creation of districts, with more than 14,460 favoring and only 329 opposing such districts. Not a single district has failed to materialize in Arkansas because of opposition in a referendum. In one state, however, more proposed districts have been voted down than have received a sufficient majority of "yes" ballots for creation. A soil conservation district can be created only by the farmers themselves.

Problems Encountered

The soil conservation district provides a common ground where public agencies can join with a community of farmers or ranchers to work together toward common objectives. As a governmental subdivision, the district is in a position to receive active assistance from local, state, and federal agencies. It may enter into agreements with individuals and, through cooperative action, solve problems beyond the means of the average individual farmer. The district may plan for long-time social and economic adjustments and at the same time carry on active work programs necessary to achieve such objectives. *In effect, the soil conservation district provides a means of converting public interest into public action.* Of no little importance is the fact that such a district, in most states, is in a position to influence a limited control over local land use in the interest of the district as a whole.

Effective soil conservation is largely a matter of using each piece of land according to its natural needs and adaptabilities. These needs and adaptabilities are not always readily apparent, and must be established by careful study and thoughtful analysis of local conditions—physical, economic, and social. Such study and analysis, to be effective as a guide to action, must consider each individual farm, and its peculiar conditions, as a unit. This in turn requires a background of technical knowledge which usually can be provided by such agencies as the Extension Service, Soil Conservation Service, Forest Service, State Agricultural Experiment Station, AAA, and others that have accumulated a fund of practical knowledge.

Consequently, the first concern of a soil conservation district is to obtain technical assistance from those agencies. In all states that have district laws, the state soil conservation committee is empowered to help districts establish cooperative relations with various public agencies and to aid the district supervisors in formulating programs and work plans that will guide the conduct of district operations. At the request of a local district, this committee assists in negotiating with various agencies to obtain the technical and other assistance needed by the district for developing and putting into operation a comprehensive program and work plan.

"Programs" of Soil Conservation

The "program" of a soil conservation district is a comprehensive statement of erosion conditions, soil conservation prob-

[5] Except in Colorado and California, where districts are authorized to levy special assessments against the lands.

[6] Fourteen additional soil conservation districts have been created under a Texas wind erosion control law, 8 of which are operating at present in cooperation with the USDA.

lems, and recommended long-time changes in land use and farming practices within the district which will conserve the soil and soil resources. The soil conservation district "work plan" is a comprehensive statement of the immediate methods and procedures which the district proposes to use in controlling and preventing soil erosion and conserving soil and soil resources.

It is interesting to review some of the procedures followed by the supervisors of districts in developing their district "programs" and "work plans" and in arriving at the long-time objectives for their districts. The supervisors of the Thomas Jefferson Soil Conservation District of Virginia, for example, made use of available information from local planning groups, county agricultural organizations, various agricultural agencies, and other sources in the preparation of their "program" and "work plan." Land-use adjustments, as they may affect not only the control of erosion and the conservation of soil but also the agricultural welfare of the district as a whole, were taken into consideration in outlining the steps to be followed. Certain goals of eventual land use within the district, designed to meet the needs of the people and to perpetuate agriculture, were established by the supervisors. Some of these goals were listed as follows:

"Based on the limited available data, it is estimated that the following operations will be necessary to development of the district program:

1. Approximately 19,836 acres now in crops should be converted to other uses.
2. Rotations should be improved on approximately 159,713 acres.
3. Pasture should be increased some 12,000 acres.
4. 167,600 acres in existing pastures should be improved.
5. Approximately 91,985 acres of woodland should be fenced from grazing.
6. Approximately 44,524 acres of idle land should be converted to proper land use.
7. Assistance in woodland management will be needed on approximately 349,154 acres of existing woodland, and woodland should be increased by approximately 2% by reforestation.
8. An extensive study as to erosion control practices should be made on approximately 16,000 acres devoted to fruit growing.
9. Drainage surveys and assistance should be given on approximately 10,000 to 20,000 acres of land suitable to crop land.
10. Terracing will be practiced where farm layout justifies on 10,000 to 20,000 acres."

The farmers themselves, through their own initiative, group action, and cooperative arrangements, will have a big responsibility in assisting the supervisors in carrying on the work of the district. Such assistance as determining work-area priorities, establishing community demonstrations, routing of equipment, etc., are within the province of local groups as specified by the supervisors in their work plan.

Of the 155 districts created before June 1, 1939, at least 110 are now operating in full swing. The Soil Conservation Service is cooperating with these districts by providing technical and other assistance in developing and carrying out complete farm plans providing for improved land use. This cooperative work is covered by a memorandum of understanding between the Department of Agriculture and each operating district. Other agencies, such as the State Extension Service, Vocational Agriculture, the State Forest Service, the Farm Security Administration, the Federal Forest Service, the Bureau of Biological Survey, and the AAA are providing other types of services to the supervisors in furthering the objectives of the districts.

Some Examples

District activities over the United States in general are off to a good start. The formulation of complete farm plans and the execution of practices prescribed under such plans should be regarded as the most important yardstick of progress in district operation.

The first farm plan developed in the West Ottawa District of Michigan was completed and signed by the individual farmer and the directors[7] of the district on March 2, 1939. About two months later a total of 76 farm plans had been completed. On most of these farms, the establishment of practices was made a part of spring farming operations. For example, 750,000 trees were planted during this short time by the farmers, in keeping with provisions of their farm plans. Thirty-five hundred cubic yards of marl, mined through efforts of the district directors in cooperation with the County Highway Department, were made available to farmers cooperating in the district program. Fifty-one 4-H Club members, under sponsorship of the local county agent within the district,

[7] Governing bodies of soil conservation districts in Michigan are called "directors" instead of "supervisors."

established seed beds for production of planting stock to be used on their family farms. Many small group meetings have been conducted at rural school houses by the supervisors in cooperation with the county agent and others to acquaint farmers with the need for and the provisions of adequate land-use and soil-conservation plans for individual farms. With more than 100 recent requests for assistance on file and with only a limited amount of technical help available, the supervisors of the West Ottawa District have already been compelled to determine priorities among the farmers for the development of farm plans.

Already the face-lifting operations on more than 22,000 acres of land in the Central Valleys Soil Conservation District of Arkansas have yielded graceful curves and pleasing hues and contrasts to the landscape. Contour cultivation, strip cropping, terracing, reforestation, new meadows, farm ponds, food and cover areas for wildlife are in evidence on every hand. Nearly 200 farms are embraced in the area undergoing these changes. The 22,000 acres, however, are a relatively small portion of the whole district which covers a total area of 1,275,000 acres. Although the district has been in operation only a little over a year, its period of future active life is indefinite. As time goes on, maintenance of practices becomes an important function of the district. In other words, the district will continue to function as long as need for it exists and as long as the farmers want it.

The Broad River Soil Conservation District in Georgia, embracing eight counties and covering 1,622,000 acres, has approximately 300 of its 16,000 farms comprehensively planned for soil and water conservation. Farmers operating approximately 50,000 acres have already agreed to carry forward a complete program on their farms and to adopt necessary land-use changes. Ordinarily, 40 to 50 farms are in process of being planned at any given time in the district, and numerous requests for assistance are on file with the supervisors. The county agent, vocational agriculture teachers, Soil Conservation Service personnel, Farm Security supervisors, agricultural leaders, and others assist in carrying on educational programs with farmer groups in order to forward the whole district program. Unified action over the 15 months' period of operation of this District is bringing forth results which may be considered by some as successful; but the supervisors of the district feel that even more rapid progress in the planning and establishment of practices is needed to meet the objectives set up.

Mass-attack procedures have produced a marked degree of success in the Burns-Homer-Pleasant Soil Conservation District at Winona, Minnesota. Through group planning and educational procedures, 107 farm plans have been formulated in three months by farmers with the help of the supervisors and representatives of technical agencies cooperating with the district. Using physical land surveys furnished by technical men, the farmers themselves, with proper leadership and technical guidance, have worked out their own land-use plans. They have also determined soil treatments and erosion-control measures required to meet their own needs as well as the needs of the land. Farm management, the requirements of the farm family, and the experience of the farmer have been taken into consideration in working out a balanced business enterprise on the farm.

Many other similar examples could be cited from practically any one of the 24 states with operating districts. In fact, a whole fund of interesting information is contained in the reports of supervisors of soil conservation districts, minutes of their business meetings, records of the proceedings and activities of state soil conservation committees, and annual reports of specialists in soil conservation and others cooperating with the districts.

Many efforts in past years account in part for this widespread activity. The work of the State Agricultural Colleges, through their Experiment Stations and Agricultural Extension Services, the Vocational Agriculture departments, farmer organizations, soil conservation associations, the Soil Conservation Service, and other agencies of the United States Department of Agriculture have also contributed to the gratifying progress of soil-conservation districts.

In the article entitled "Soil Conservation Districts Make Progress" in the February, 1939 issue of the *Extension Service Review*, Edd Roberts, Extension Soil Conservationist in Oklahoma, writes:

"Individual farmers have been practicing measures of erosion control for years, but they have learned that it is a difficult if not a losing single-handed fight. They recognize that erosion control is not a one-man job and that no single remedy solves the problem. They reason

that partial treatment of the problem cannot equal a community-wide cooperative program backed by enthusiastic local leadership. As the forces of wind and water are not halted by the section line or fence row, erosion becomes a community problem, and community problems require community action."

Farmers the nation over are becoming increasingly cognizant of the need for unified action in meeting their problems. In many places, they are taking advantage of the soil-conservation-district approach as a means to this end. A realization on the part of land operators of the need for an adjustment in land-use policies and practices is hastening the widespread acceptance of comprehensive, community plans of action, such plans being farmer-controlled, farmer-administered, and farmer-applied through democratic processes and in cooperation with local, state, and federal agencies that are in a position to provide assistance.

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Operation of the Dane County, Wisconsin, Zoning Plan

THE necessity for planning and county zoning in Dane County focuses largely on the city of Madison and its environs. During the last decade this community has expanded very rapidly for two principal reasons: one is the growth of the University and the other is the large increase in governmental functions and the establishment in the capitol city of the state of central offices of many federal work and emergency activities. The influx of population brought about by these activities has created traffic, transportation, housing, and recreational problems within the city which have caused the population to move into the outlying areas.

This movement has also been encouraged by the existence of a metropolitan sewage and water commission whose facilities are extended beyond the corporate limits of Madison. In addition, the rapid growth of the city itself has caused a crowding of such land uses as business and industry and the constant pressure on the city authorities for amendments to their zoning ordinance. Changes in that ordinance began to force such uses as were not of the highest type to move out of Madison into the surrounding territory. Much of this surrounding territory is highly desirable for residential purposes and probably contains as many fine residential sites as can be found in any community of comparable size in the country. Furthermore, the large amount of residential building in the environs found difficulty in obtaining necessary financing because no protection whatsoever was offered for residential investments. Consequently, in the interest of future development and as a protection to the immediate countryside, it became imperative that something be done toward regulating land uses and that some means be offered by which investments in residential construction could be protected.

Therefore, a comprehensive zoning ordinance for Dane County came into effect August 11, 1938 and it has been effective in accomplishing these purposes. It was adopted rather hastily because certain conditions were developing in the county which the authorities felt it was necessary to control at the earliest possible moment. The ordinance, in the form then existing, would accomplish that purpose. It was, therefore, approved and submitted to the towns with the idea that amendments would be submitted as rapidly as experience indicated their necessity. This has resulted in five changes during the first nine months of operation. Four of these are adjustments of the setback and sideyard regulations as applied to plats recorded before the ordinance was adopted and changes in small areas on the map. However, the fifth amendment, an important aid in administration, requires that a building permit be applied for and issued before any building construction is started in any of the towns which have approved of the ordinance and that a certificate of occupancy and compliance be issued when the construction is complete. This change, made after the ordinance had been in effect for some months, was found to be necessary as a check on building operations throughout the zoned area. The building-permit requirement accomplishes exactly the purpose for which it was intended.

Recently, the Dane County Board of Supervisors has designated the County Park Commission as the body to administer the

Dane County plan. Previous to this action, the situation of the Board of Adjustment, which is the same as a board of appeals in a city ordinance, was one of extreme difficulty, in that it was assumed to be the administrative body and consequently was asked to act on every question of interpretation of the ordinance. This, of course, took the Board beyond its function and developed a strong tendency to stretch its powers. With the official designation of an administrative body, many of the questions previously referred to the Board of Adjustment will be referred to the Park Commission and undoubtedly the former will be able to function much better in the field to which it is strictly confined.

The beneficial effect of the ordinance to date has been noticeable. Several proposed uses contrary to the regulations have been removed into locations where they are permitted. This has happened in the case of one industrial use, one nuisance use, one business use which it was proposed to erect in a residential district, and also one multiple-family use proposed for a single-family residence district. Several new subdivisions have been recorded which embody land-subdivision standards set up in the ordinance; street widths and continuities have been controlled and building-line setbacks have been effective. It is now possible to obtain construction loans which were formerly withheld because of the lack of protection for residential investments.

This ordinance, as it applies to the environs of Madison, affects areas of widely different character. It is generally conceded that the suburban residential development beyond the western limits of the city is of a rather high type and land values are also relatively high. In this area there has been a tendency to criticize the regulations and to attempt to circumvent the ordinance by seeking relief from its requirements through the Board of Adjustment. The Board has, in general, taken a stand against such appeals but, nevertheless, the tendency exists in this area. At the other end of Madison is a section having a more modest type of development, which also contains a great many poor lots that have become tax delinquent. Here the attitude of the people who are engaged in the development of land is one of upholding the zoning regulations to the very limit and of actually adopting town regulations to buttress and further raise the standard of the development taking place in that particular area.

In general, the greatest criticism of the Dane County Zoning Ordinance has been on the basis of the minimum size of residential lots which are of two types: the A Residence District requires lots to have an area of 10,000 sq. ft. and the B Residence District requires lots of 8,000 sq. ft. Both are single-family residence districts. Much oratory has been expended in an attempt to prove that lots of even 8,000 sq. ft. in area cannot be sold at a profit in the environs of Madison. On the other hand, in the area first mentioned (i.e., the higher priced area), a subdivision was proposed just previous to adoption of the Dane County ordinance. The lots were from 7,200 to 7,500 sq. ft. in area. The authorities having to do with the approval of the plat pointed out the fact that the county was about to adopt an ordinance requiring a minimum of 8,000 sq. ft. in this particular district. The subdivider withdrew his plat and redesigned it and, although he did not designate the 8,000 sq. ft. required in each individual lot, he dedicated an interior block playground for the use of the subdivision, the area of which, if prorated among the lots, would bring them to an average of about 8,100 sq. ft. All of this was done as a voluntary action by the subdivider without the force of any regulation. I believe it fair to say that this has been one of the most successful development projects in this area within the last several seasons. The "first addition" to this subdivision has been approved very recently and it is most interesting to note that the lots in the "First Addition to Sunset Village" are substantially larger than the ordinance requires, some of them being as great as 12,000 sq. ft. in area.

Probably the most valuable single effect of the Dane County zoning ordinance has been the awakening of public interest in the orderly development of rural areas and the growth of the idea that these rural areas are as much entitled to protection and can gain as much from it as can any urban community.

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E. W. Morehouse, *Editor*

The TVA Investigation:
Minority Views

THE minority members of the Congressional Joint Committee on the Investigation of the Tennessee Valley Authority insist that no complete investigation was made by the Committee,[1] that the findings and conclusions of the majority members on matters that were investigated are unwarranted, and that numerous conditions exist in the affairs of the TVA which merit condemnation.

Feasibility of Power Program. The minority views are concerned primarily with the Authority's power program and general administration in connection therewith, for they consider power development to be the primary purpose of TVA. The minority report finds that the power program under present rates does not pay its way now and will not pay its way in the future. This situation is described as unfair to government power, to private power, and to taxpayers.

The basis for this finding is apparently the testimony of Dean Moreland, representing Commonwealth and Southern Corporation. Dean Moreland, utilizing the incremental-power-investment theory of allocation, held that 72% of the 11-dam system investment should be allocated to power, as compared with an allocation to power of approximately 55% made by TVA and the Committee's engineers, and approved by the majority members of the Committee, under the alternative justifiable-expenditure theory. The latter theory, say the minority members, overemphasizes navigation and flood control and thus underemphasizes power, with the result that the allocation of investment to power is far lower than should properly be made. They conclude that to charge any more to navigation and flood control than the amount indicated by Dean Moreland's study "is to relieve the power operations of a disproportionate part of the cost."[2]

Dean Moreland's investment allocation leads to the further finding that TVA's power program will result in an annual "out-of-pocket" loss of $10,352,000, consisting of an annual operating loss of $4,039,000 and lost taxes, which would have been obtainable from a utility company owning the TVA system, of $6,313,000. To this loss is added another $10,647,000 for additional interest, depreciation, and taxes which would be payable by a private utility company, thus making a total annual loss to a utility company owning and operating the TVA 11-dam system of $20,999,000. At another place the minority report refers to an annual loss of $24,631,600. Opposing these estimates are Mr. Krug's estimate of an annual profit of $4,624,775 for the 11-dam system and the Committee's engineers' estimate of an annual profit of $3,783,000 for the 10-dam system. The difference in these estimates is traceable to the higher investment allocated to power by Dean Moreland with the charges for depreciation, interest, and taxes thereon, and to higher rates of depreciation, taxes, and interest used by Dean Moreland.[3] In general the approach of the minority mem-

[1] For the review of the majority report see 15 *Journal of Land & Public Utility Economics* 212–24 (May, 1939). The minority report has been added to the printed volume containing the majority report as "Part V. Minority Views," covering pages 261–357.

[2] See pages 278–93 of the Committee's report. Dean Moreland's allocation to power was $451,317,773 for the 11-dam system, or $118,798,617 more than the comparable allocation presented by Mr. Krug of the TVA. Moreland's figures for navigation were $91,809,000 and for flood control $81,133,600, or a total of $172,942,600, which is his estimate of the cost of alternative systems for these purposes and which compares with an allocation to navigation and flood control of $225,000,000 made by the Committee's engineers for the *10-dam* system. The majority members' reasons for refusing to accept Moreland's allocation are summarized at 15 *Journal of Land & Public Utility Economics* 215–6 (May 1939).

[3] Moreland used a 3½% interest rate as compared with 3¼% used by the Committee's engineers and 3% used by Mr. Krug. Moreland figured depreciation on a 30-year life basis for equipment and a 50-year life basis for dams, whereas the Committee's engineers provided for amortization of the power investment over 50 years,

(*Footnote 3 continued on page 361*)

bers of the Committee seems to be that the private utility companies should set the standard for TVA's operations, and on this basis they find that TVA's power development will operate at a large annual loss.

In spite of the favorable reception accorded Dean Moreland's estimates by the minority report, the minority members conclude that for the purpose of their report they are accepting the allocation figures finally reported to Congress but that they firmly believe and recommend that this whole question of allocation should be made the subject of further investigation by the best engineering and accounting talent obtainable and by men of the highest integrity without personal bias or even a remote personal interest. The implication is that the Committee's Chief Engineer (who died before the report was completed) and his consulting engineers were not competent or unbiased or above sacrificing professional ethics for personal ambition—presumably because of their findings, since the minority members state that the engineers did not testify or appear before the Committee.

The annual revenue estimates of Dean Moreland and Mr. Krug for the 11-dam system are in fairly close agreement (Moreland, $24,136,000; Krug, $23,968,750). The estimates of the Committee's engineers are somewhat higher, being $24,330,000 for the 10-dam system. The minority members claim that the revenue estimates are highly speculative in respect to TVA's capacity to produce and market the power. They criticize the engineering report for presenting estimates on various bases in which the installed capacities of TVA are assumed to vary, with the result, they claim, of increasing the secondary and dump power capacity of the system and permitting a maximum revenue estimate which is unsound and misleading. Also, the minority report insists that no satisfactory evidence was presented to the Committee to show where the power will be marketed. Although testimony referred to the general growth of the power market in the TVA area, the minority members want to be informed as to specifically where and to whom and at what price TVA power will be sold, and therefore criticize the revenue estimates of both the Committee's engineers and Mr. Krug (but not Dean Moreland) for assuming a market which is now being served by private companies. The minority report again recommends that a "thorough and unbiased investigation" be made by "competent engineers" to determine the economic and feasible development of the power capacity of the TVA and the specific market for this power.

The Yardstick. The minority members find that the attempts of TVA to establish a "yardstick," either for wholesale or retail prices for electric power, are wholly futile and misleading. Reasons cited for this finding are that the allocation of investment adopted by TVA results in smaller capital charges to power operations than is proper, that private companies cannot make any such allocation at all, that the rates adopted by the Authority were arbitrarily designed on a "social" basis prior to the investment allocations and without regard to TVA's cost of operations, that no consideration was given to the costs of private utility operation, and that in any event TVA's power development will be operated at a substantial loss. The minority members conclude that TVA's rates are valueless as a measure of private rates and that as a yardstick they are deceptive, unfair, and dishonest.

The minority report also attempts to support this conclusion by a review of TVA's accounting methods and cost charges. The report points out that the Authority allocates its capital expenditures among several "programs," that it escapes interest on funds appropriated to it out of the Federal Treasury and on the value of property turned over to it by Congress, that it is exempt from federal, state, county, and municipal taxation, that it does not reflect in its capital costs interest during construction, and that it allocates part of its operating expense, depreciation, and maintenance among several programs. Because of these accounting prac-

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(*Footnote 3 continued from page 360*)

with a separate allowance for equipment of less than 50-year life, and Krug used the estimated life of each item of equipment. Moreland (in his 10 million dollar annual loss estimate) provided about 7½ million dollars for taxes which he thought would be borne by a private company; the Committee's engineers provided $3,284,550 for taxes and insurance which they thought would put TVA on a basis comparable with private industry (12½% of gross *wholesale* revenues for taxes or 13.74% of gross revenues from ultimate consumers); and Krug provided $1,198,400 for taxes, equal to 5% of gross wholesale revenues. (See 15 *Journal of Land & Public Utility Economics* 217–20 (May, 1939).)

tices the minority members claim that TVA's rates do not provide a legitimate, honest yardstick of equitable rates of private industry. This finding is made pursuant to the wording of the joint resolution. It should be noted, however, that the investment, revenue and expense estimates made by the Committee's engineers and others for the 3-, 7-, 10-, and 11-dam systems are engineering estimates which have no direct relation to the accounting records. Hence the status of TVA's accounting methods, which are criticized in more detail below, is avoided in the feasibility studies.

Accounting Procedure. Not content with the admission of the majority report that TVA's accounting methods prior to 1938 were extremely unsatisfactory, the minority members dwell at considerable length on the subject. Furthermore, they take issue with the statement of the majority report that the Authority's accounting reorganization in 1938 has corrected the situation. Referring to a memorandum of the Federal Power Commission's Chief Accountant dated November 28, 1938, to the effect that the proposed accounting changes had not been put into effect or even finally formulated, and citing the testimony of TVA's new comptroller, Mr. Kohler, that the accounting reorganization would require a period of two years, the minority report emphasizes that the Authority's accounting muddle still exists. Among the criticisms cited are, that the full power investment is not properly recorded, that direct power-generating costs are not recorded by stations, that retirements have not been recorded, that purchased properties are recorded at estimated reproduction cost new less accrued depreciation instead of on the basis of original cost, that the cost of purchased property does not include acquisition expenses, that overhead expenses have not been handled satisfactorily, that recording of proper depreciation expense is not yet practiced, that the accounts lack appropriate completeness, definiteness, and finality, that prepared statements contain breakdowns not found in the accounts, that monthly financial statements are not prepared and cannot be prepared from the present system, and that emphasis is upon too much detail for administrative purposes rather than upon financial accounting. The minority members brush aside TVA's defense that the Federal Power Commission's classification did not cover multi-purpose projects such as the Authority's and conclude that TVA's accounting methods are indefensible and alone justify the finding that administration of the Authority has been neither economical nor efficient.

The minority report disagrees with the majority conclusion that TVA's accounts should be audited by an independent commercial auditing firm instead of being subject to the general budget and accounting control of the Comptroller General's office. The control of the General Accounting Office over TVA should be strengthened, they say, and if necessary legislation to accomplish this purpose should be enacted.

Furthermore, the minority report favors not merely post-audits of TVA but pre-audits, on the ground that the profit-motive safeguard of private industry is not present in government, which is primarily expense conscious. Therefore it is recommended that pre-audits of the Comptroller General be supplemented by a system of periodic post-audits.

General Administration. The minority members insist that the administration of TVA has been, in many particulars, neither economical nor efficient. Waste and inefficiency have been present in the administration of the power and agricultural programs, they claim, and frequently TVA's attitude has been arbitrary, dictatorial, and unbusiness-like. Until recently, they say, the Authority's power policy has been grossly unfair and if continued would result in partial confiscation of the holdings of investors. The Authority is also criticized for holding that it has no power to submit disputes with the private utilities over the value of their properties to arbitration.

In a discussion of relations between TVA and the private utilities, the minority report portrays Dr. A. E. Morgan as favoring a conciliatory attitude toward the utilities and as wanting the business of the Authority to be conducted in the open and on the highest plane of competence and integrity. The majority of the Board, and particularly Mr. Lilienthal, are described as possessing a propensity to exaggerate TVA's accomplishments, to pursue indirectness, concealment, and manipulation in negotiation, and to be lacking in complete candor. The minority members therefore disagree with the conclusion of the majority that dissension in the

Board was an outgrowth of Dr. A. E. Morgan's unfortunate habit of attributing moral delinquency to anyone who differed with him.

The numerous litigation and injunction suits brought by the private utilities against TVA, for which the majority report criticizes the companies, are justified by the minority report on the ground that citizens are entitled to protect what they consider to be their constitutional right by resorting to courts of equity. Dr. A. E. Morgan's criticism of the handling of the litigation, as well as the Berry marble claims, is supported by the minority members. They also exonerate the private utilities for activities which the majority report condemns as propaganda, on the grounds that TVA employed similar tactics and the private utilities had to fight for their lives.

The administration of fertilizer operations is criticized by the minority report for having violated the TVA act governing the production of nitrates, for incurring excessive costs not justified by the results achieved, and for becoming unnecessarily competitive with the production of fertilizer by private industry, instead of being confined to experimentation.

Other aspects of administration for which the Authority is criticized, in addition to its accounting procedures, include its labor relations, its desire for temporary exemption from the civil service act during the development period, its retirement plan (which the majority also believes to be undesirable), many of its purchases, changes made in its corporate minutes, strict rules governing access to its employees (which are described as intended to frustrate Dr. A. E. Morgan's activities), and the location of its office.

A striking feature of the minority report is its failure to recognize anything commendable in the administration of the TVA except matters associated with Dr. A. E. Morgan.

Organization of the Authority. The minority members are not in accord with the recommendation of the majority report that no changes be made in the present organization of TVA. They recommend a separation of functions and a complete reorganization of the Authority, on the ground that the major functions of river control, power distribution, and agricultural development together with numerous minor functions form an incongruous whole.

The reorganization of TVA recommended by the minority report is as follows: (1) all agricultural activites should be transferred to the Department of Agriculture;[4] (2) the whole function of river control, including construction and operation of dams, navigation, and flood control, together with the generation of power at the dams and the tie lines between the different dams, should be turned over to the War Department;[5] (3) the handling of the power from the bus bars at the dams to the consumer should be retained and operated by TVA, but under a reorganized board of five directors (instead of three), who would be nominated by the President and confirmed by the Senate and who would be paid upon a per diem basis or a reasonable annual salary plus traveling expenses; and (4) other numerous and varied functions now being performed by TVA should be turned over to other appropriate government agencies now in existence. Pursuant to such a reorganization the Authority should have charge of transmission, distribution, and sale of power, it should be subject to the regulation of state commissions and the Federal Power Commission to the same extent as private utilites, it should be required to purchase the surplus power generated at the hydro plants by the War Department at reasonable rates fixed by the Federal Power Commission, and it should be required to fix its resale rates to cover all costs including all taxes that would be paid by a private utility. Finally, the Authority should "define its area of distribution so that present uncertainty may be removed and the private utilities in adjoining areas feel satisfied in making much-needed investments for improvements and expansions." This recommendation, which goes to the heart of the controversy between TVA and the utilities, follows the contention of the private companies.

Conduct of the Investigation. The conduct of the Committee's investigation is severely criticized by the minority members. Matters which they claim should have been investi-

[4] The phosphate plant and nitrate plants would be turned over to the Department of Agriculture when engaged in the manufacture of fertilizer but would be turned over to the War Department on the order of the President if and when it might be necessary in time of war.

[5] *Ibid.*

gated include the economic feasibility and possibility of attaining many of the major objectives set up in the TVA Act of 1933, the extent of injury to private companies and governmental units occasioned by the Authority's program, the adverse effect of the program upon the lives and welfare of the people in the Tennessee Valley, an audit of the Authority's transactions by capable accountants independent of other governmental departments, and the Authority's negotiations for purchase of properties of private utilities and concurrent transactions in the securities of such utilities.

A complete investigation was also prevented, it is claimed, by the failure of the Committee to call upon numerous witnesses suggested by the minority members, including the Committee's Chief Engineer and his staff who prepared the engineering report. Throughout the minority report it is implied that the counsel, engineers, and other consultants engaged by the Committee were incapable or biased or possessed of personal ambition or other qualities which prevented a complete and impartial investigation. In his special minority report Representative Jenkins is particularly critical of the conduct of the chief counsel and his assistants, who, he charged, did not of their own initiative bring out any evidence whatever against TVA, but left this function to the minority members of the Committee. As for the engineering report, however, Representative Jenkins said that he has no doubt of the ability and character of the Chief Engineer and his corps of assistants but that it was improper procedure in the investigation for the engineers not to participate actively in the hearings before the Committee.

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Public Utility Financing in the Second Quarter of 1939

PUBLIC utility security offerings totaled approximately $435 millions in the second quarter of 1939. The total for the first quarter of 1939 was $150 millions and the total for the second quarter of 1938 was $240 millions. The current quarter's volume of financing is approximately three times the volume in the preceding quarter and 81% larger than the corresponding quarter in 1938. Funds realized from the sale of $435 millions of new securities were used mostly for refunding purposes (97%); new capital requirements were distinctly secondary in importance (3%).

Long-term debt obligations represent $384 millions or 88% of the total amount offered. Serial obligations of $3 millions are not included in this figure. Long-term debt obligations continue to be the main source of funds for capital and refunding purposes. Publicly offered long-term bond issues totaled $203 millions, and the balance ($181 millions) was placed privately. Private sales to institutional investors continue to be an important source of funds. Preferred stock offerings amounted to $48 millions, or 11% of the total. No record of common stock issues placed on the market was found. Issues of short-term notes are not included in this analysis. The press releases of the Securities and Exchange Commission list short-term notes for the utilities subject to its jurisdiction, but records of notes of other utilities placed with banks and private investors are not available. Note financing represents an important source of funds, although some of the notes are eventually refunded into long-term debt or stock issues. Issues of common stock by operating companies to replace advances and other obligations to parent corporations or to facilitate integration of corporate structures are not included in this analysis because of the difficulty of obtaining the necessary information. This omission may partially explain the small proportion of common stock shown in this and previous summaries.

No stock or bond issues were offered by major holding companies in the second quarter of 1939. All issues tabulated represent operating-company financing.

Long-Term Debt Financing. The 24 issues in this classification totaled $383,698,300. Seventeen such issues were offered publicly and seven were offered privately. The seven issues which were sold privately, totaled $180,825,000. They include the following:

$ 725,000	Colorado Central Power 1st 4½s due 1959, sold at 102½ to yield 4.31%.
800,000	Greenwich Gas Co. 1st 3½s due 1954, sold at 100 to yield 3½%.
114,500,000	Commonwealth Edison Co. 3¼s due 1979, sold at 102 to yield 3.16%.
10,500,000	Montreal Light and Power 1st 4s due 1969.
22,500,000	Indiana and Michigan Electric Co. 1st 3¼s due 1969, sold at 103 to yield 3.10%.
1,800,000	Lexington Telephone Co. 1st 4s due 1964, sold at 103 to yield 3.81%.
30,000,000	Southern California Edison 3¼s due 1964, sold at 104.37 to yield 3.00%.

Particular attention is directed to the issues of the Indiana and Michigan Electric Company, the Southern California Edison Company, and the Commonwealth Edison Company. These issues account for 92% of the total sold privately and all were sold at comparatively low yields (3.00% to 3.16%). These yields are noteworthy because the companies were not called upon to pay any underwriters' commissions. The difference between the yield at the offering price and the net cost to the company in most instances is less for issues sold privately than

TABLE I. SUMMARY AND ANALYSIS OF LONG-TERM DEBT ISSUES OFFERED PUBLICLY, SECOND QUARTER, 1939*

Company and Issue	Coupon Rate	Principal Amount	Maturity Date	Month of Offering	Offering Price	Offering Yield	Underwriters' Commissions	Proceeds to Company	Estimated Incidental Expenses	Net Proceeds	Cost to Company
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
	%				%	%	%	%	%	%	%
Commonwealth Edison Co. Convertible Debentures.	3½	$ 25,283,300	1958	April	100	3.50	1.00†	99.00	.95	98.05	3.65
Gatineau Power Co. First Mortgage A.....	3¾	52,500,000‡	1969	April	98¼	3.85	2.25	96.00	.45§	95.55	4.01
West Coast Telephone Co. First Mortgage.....	4	3,800,000	1964	April	100	4.00	2.00	98.00	.91	97.09	4.19
Montana-Dakota Util. Co. First Mortgage.....	4½	9,000,000	1954	May	101	4.41	3.50	97.50	1.49	96.01	4.88
Newport & Fall River St. Rwy. (now Newport Elec. Co.) Mortgage Bonds.....	4½	304,000	1954	May	118	3.00	2.00	116.00	6.91	109.09	3.70
Southern Utah Power Co. First Mortgage.....	5½	99,000	1960	May	97	5.75	4.10	92.90	3.03	89.87	6.36
Central Illinois Elec. & Gas Co. First Mortgage¶.....	3¾	14,750,000	1964	June	100½	3.72	2.00	98.50	.53¶	97.97	3.88
Consol. Gas. Elec. Light, & Power of Baltimore First Mortgage.....	3	7,000,000	1969	June	105	2.75	2.00	103.00	.99	102.01	2.89
Gulf States Utilities Co. First Mortgage.....	3½	27,300,000	1969	June	106¾	3.15	2.00	104.75	.43	104.32	3.27
N. Y. State Elec. & Gas Corp. First Mortgage.....	3¾	13,000,000	1964	June	102	3.63	2.00	100.00	1.54	98.46	3.84
Rochester Gas & Elec. Co. General Mortgage.....	3½	8,323,000	1969	June	105½	2.97	2.00	103.50	1.04	102.46	3.12
Washington Water Power Co. First Mortgage.....	3½	22,000,000	1964	June	105	3.21	2.00	103.00	.66	102.34	3.36
West Texas Utilities Co. First Mortgage.....	3¾	18,000,000	1969	June	101¾	3.65	2.00	99.75	.39	99.36	3.79
Weighted Ave. or Totals..	3.65	$201,359,300	—	—	101.75	3.56	2.01	99.74	.70	99.04	3.73

* Four issues amounting to less than 1% of the total are excluded because of incomplete information. See text for list.
† Assumes that underwriters did not find it necessary to purchase any of the bonds.
‡ Excludes $10,000,000, Series B, offered in Canada.
§ Expenses prorated between bonds offered in Canada and U. S. on basis of total par value in each of the two issues.
¶ Company also issued $3,000,000 in serial debentures (due 1939–1949) to yield .75% to 4.00%. Expenses were prorated on the basis of the total par value in each of the two issues.

for issues of similar size sold publicly. If it is assumed, for example, that expenses applicable to the Southern California Edison Company issue total 1% of the total par value offered, then the net cost to the company was only 3.06% as compared to the offering yield of 3.00%.

The 17 long-term debt issues offered to the public during the second quarter totaled $202,873,300. Those for which sufficient information was available are analyzed in Table I. The remaining publicly offered issues, together with their offering prices and yields to maturity, are listed below:

$1,000,000	Kankakee Water Co. 1st 4¼s of 1959, sold at 102 to yield 4.10%.
300,000	Main Consolidated Power Co. 1st 4s of 1964, sold at 102 to yield 3.87%.
150,000	Shawnee-Mission Water Co. 1st 5s of 1953, sold at 100 to yield 5%.
64,000	Texas Water Company 1st 6s of 1958, sold at 98 to yield 6.18%.

The analysis in Table I indicates a rather wide range in yields at offering prices. Two issues, that of the Consolidated Gas, Electric Light and Power of Baltimore and that of the Rochester Gas and Electric Company, sold at prices to yield less than 3%. The largest issue offered publicly, that of the Gatineau Power Company, sold at a price to yield 3.85%. The weighted average yield on all bonds included in the table was slightly higher than that recorded in the first quarter of this year. Underwriters' commissions and incidental expenses show little change from other recent quarters.

Other Utility Financing. Two issues with serial maturities were offered during the second quarter. Central Illinois Electric and Gas Company offered $3,000,000 in serial debenture 3s, 3½s and 4s due 1939–1949 at prices to yield .75% to 4.00%. Lexington Water Company sold 4¼% notes ($55,000) due serially to 1954. This issue was sold privately.

Second quarter offerings of preferred stock, totalling $47,978,900, are listed below

$ 800,000	Lexington Telephone Co. 6% cumulative, par $100, price $100.
2,927,600	New York Electric and Gas Corporation, 5½% cumulative, par $100, price $100.
20,400,000	Pacific Lighting Corporation $5 dividend preferred stock, no par, price $102.
22,306,300	Consolidated Gas Electric Light and Power of Baltimore, 4½% cumulative, preferred stock, par 100, price $112.50.
1,545,000	Jamaica Water Supply Co. $5 cumulative preferred, no par, price $103.

The issue of 223,063 shares of Consolidated Gas Electric Light and Power of Balitmore preferred stock was sold to yield 4%. This is the lowest yield on preferred stock recorded in the summaries published in this section since the first quarter of 1937.

Several private utilities borrowed during the second quarter from the Rural Electrification Administration on serial mortgage notes. The funds obtained from this source are to be used exclusively for rural extensions. A complete list of such borrowings is not available but the items listed below are representative of the costs of this form of capital:

Name of Company	Amount Borrowed (000 omitted)	Term (Years)	Rate of Interest (%)	Miles of Line to be Built	Customers Added	Amount Borrowed per Mile of Line
N.Y. State Elec. & Gas Corp.	$300	20*	2.73	248	1,250	$1,210
Tidewater Elec. Serv. Co.	72	†	†	72	312	1,000
Stonewall Elec. Co.	39	20‡	2.73	†	163	†

* Payable in 39 installments: first installment due one year from date of issuance, balance in 38 semi-annual payments.
† Data not available.
‡ Commencing in 1940, a monthly payment is to be made on account of principal in an amount which, together with the interest payment, will equal $5.73 per $1,000 of the principal amount of the note remaining unpaid.

The data in the summary above indicate that private electric utilities may obtain funds from the REA for rural extensions at a rate of interest which compares very favorably with current market rates on high-grade bond issues and that the amount borrowed may represent a very high percentage of the cost of the extension.

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W. H. Evans

Statisticians, Public Service Commission of Wisconsin

Ouster after Expiration of Franchise:
The Geneseo Case

THE revived interest in municipal ownership of electric utilities has resulted in competition between public and privately-owned systems in various localities. Since each system is usually equipped to serve the entire community—if it can obtain the customers—each competitor has attempted, through legal means, to prevent the other from doing business. In many instances the private company has sought to enjoin the building of the public plant; such court attacks have usually failed.[1] In other cases, the municipality after entering the field has attempted to curb the existing competition of the privately-owned system. A recent example of the second class of cases involves the city of Geneseo, Illinois. In that locality the municipal corporation is attempting to avoid competition of the private system by seeking an ouster order in proceedings before the Illinois Commerce Commission. On April 26, 1939, the Commission issued its decision,[2] which will be briefly reviewed.

The history of the litigation in the Geneseo case has been presented in previous *Journal* articles,[3] but may be briefly summarized. Prior to expiration of its franchise, Illinois Northern Utilities was notified by the City of Geneseo that the city would not exercise its option to purchase and that the franchise would not be renewed. The municipality had built its own plant; upon expiration of the franchise it ordered the private company to remove its facilities from the city streets and alleys. When the order was not obeyed, the city sought a mandatory injunction against the company. This relief was finally denied by the Supreme Court of Illinois, which held that the city could not maintain the action.[4]

In its decision the court said that the Public Utilities Act creating the Illinois Commerce Commission intended to withdraw from local municipalities supervision of public utilities and to vest the same in the Commission with the exclusive power of regulation and control of all means and instrumentalities used by the utility in the conduct of its business. "The power to determine whether the defendant shall continue or cease its utility business in the city rests with the commission," said the court.

Thereupon the city filed a complaint with the Commission praying for relief which was substantially similar to that which it requested of the court. Among other things, the municipality alleged: that it was serving a majority of the consumers in the city; that it has adequate capacity to handle all electric business in the locality; and that the Illinois Northern Utilities Company occupied its streets and furnished electric service in the city contrary to the municipal ordinance. After hearings on the complaint, the issues were crystallized in briefs filed by the parties and in oral argument before the Commission. Among the issues presented were: whether the municipality was appearing in a governmental or proprietary capacity; whether in that capacity it could maintain the complaint; whether the Illinois Supreme Court decision *required* the Commission to order the company to remove its facilities upon application of the municipality or whether the Commission could exercise discretion in the matter; and if the Commission could exercise its discretion, whether the facts warranted an ouster order.[5]

In its order the Commission ignored the jurisdictional questions based upon the governmental or proprietary status of the complainant and directed its attention to the substance of the controversy. The city had contended: that it was vested with sovereign power to regulate and control use of its streets; that upon expiration of the franchise it had the right to oust the public utility; that the opinion of the Illinois Supreme Court was not inconsistent with the exercise

[1] *Ala. Power Co. v. Ickes*, 302 U. S. 464–85 (1938).

[2] *City of Geneseo v. Ill. Northern Util. Co.*, Ill. C. C. Docket No. 26345.

[3] See D. L. Marlett, "A Regulatory Dilemma: Limited-Term Franchises, Municipal Competition and Ouster Proceedings," 14 *Journal of Land & Public Utility Economics* 246–53 (August, 1938); and E. L. Cohn, "The Geneseo Case and Public Utility Regulation in Illinois," 12 *Ibid.* 433 (November, 1936). Also see 31 *Illinois Law Review* 122 (1936).

[4] *City of Geneseo v. Ill. Northern Util. Co.*, 363 Ill. 89; 1 N. E. (2d) 392 (1936). Also see articles cited in footnote 3.

[5] The issues presented to the Commission have been summarized in Marlett, *op. cit.*, at 246, 248.

of this claimed right but merely prescribed the mode of exercising it by complaint to the Commission instead of by court action; and that therefore the Commission has no discretion in the matter but is required by law to order the public utility to vacate the city. The Commission's order rejected this interpretation of the Illinois Supreme Court's opinion, and decided that the city did not as a matter of law have the right to oust the public utility and that the Commission was vested with the power to determine whether the private company should discontinue its public utility business. Furthermore, according to the Commission, the facts did not warrant an ouster order, since the private company was serving a substantial proportion of the city's population, it was properly maintaining its properties, and public convenience and necessity did not require termination of its authority to render service.

In its order the Commission stated:

"We conceive the effect of the Supreme Court decision in the Geneseo case to be that the question of whether or not a public utility should discontinue service in a municipality after the expiration of its ordinance is a matter to be determined by this Commission and that such determination should be made in accordance with the just and reasonable requirements of public convenience and necessity, that is, whether or not the respondent public utility now serves a useful purpose in the City of Geneseo as contemplated by the Public Utilities Act. This Commission is not clothed with arbitrary power and all its determinations must be just and reasonable. It may not arbitrarily say to the respondent company that it must remove its poles and wires from the streets and public places of the City of Geneseo and cease to do business therein; and any order issued by this Commission should follow the spirit of the statute which requires that any action taken by it be just and reasonable. The evidence shows that a substantial portion of the population of Geneseo is served by the respondent company and we are, therefore, of the opinion that a just and reasonable determination of the questions presented to us requires that the respondent company be permitted to continue to serve its customers in the City of Geneseo.[6]

The Commission therefore denied the prayer of the city for an order requiring the company to vacate the city and dismissed the complaint. The municipality is taking an appeal from the Commission's order. Since a dispute exists concerning the proper interpretation of the Illinois Supreme Court's opinion, a clarification of the rights of the parties on the pending appeal should be helpful both to municipalities and public utilities in Illinois.

If the order of the Commission is sustained, the city has several possible courses of action. It may attempt to exercise its option to purchase under the franchise.[7] Since the company has only a distribution system in Geneseo, the price might not be very high. On the other hand, the company may claim severance damages on the ground that this unit is part of an integrated system.[8] Another alternative is competition as it exists at present.[9] This may eventually result in a rate war, use of the taxing power,[10] and other retaliatory measures.

A decision for either party will work a hardship on the other. Possible alternatives for the legislature are amendment of the municipal ownership law so as to provide for compulsory purchase or condemnation,[11] an indeterminate permit law, or regulation of municipal utilities by the Illinois Commerce Commission.

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[6] Contra: *Town of Seaford v. Eastern Shore P. S. Co.* (1937 Del. Ch.), 194 Atl. 92, commented on in 12 *Southern California Law Review* 98 (1938); *State v. Arkansas-Missouri Power Co.*, 339 Mo. 15; 93 S.W. (2d) 887 (1936). See 16 *Texas Law Review* 422 (1938) and 112 A.L.R. 628 for a collection of authorities.

[7] If the option can still be exercised, the provisions of the franchise contract will govern the terms of the sale.

[8] For a case under the Wisconsin Indeterminate Permit Law, where this contention was rejected, see *Wis. P. & L. Co. v. Pub. Serv. Com.*, 219 Wis. 104; 261 N.W. 711 (1935), commented on in 12 *Journal of Land & Public Utility Economics* 361 (1936).

[9] Problems of municipal competition are discussed in 34 *Columbia Law Review* 324 (1934).

[10] *Puget Sound P. & L. Co. v. Seattle*, 291 U. S. 619 (1934), commented on in 34 *Columbia Law Review* 573 and 324.

[11] Various statutory provisions are collected and discussed in 34 *Columbia Law Review* 534 (1934).

Book Review Department

Urban Land

Queen, Stuart A. and Thomas, Lewis F. THE CITY: A STUDY OF URBANISM IN THE UNITED STATES. *New York: McGraw-Hill Book Company, Inc., 1939. pp. xv, 500. $4.*

I was attracted to this book by the blurb on the jacket, which said that it was "unique in that it integrates geographic and sociological interpretations of cities." True, a geographer and a sociologist are co-authors; but the integration seems to me lacking. There are sections on geography (Part I: The Rise of Cities and of Urbanism); but the bulk of the book is sociological in derivation (Urban Institutions and Folkways; People in the City); and the parts that might lend themselves to treatment in terms of either discipline are weighted on the sociological side (Distributive and Selective Aspects of the City; Prediction and Control).

The authors do not seem to be abreast of what is going on in the big world. The three pages devoted to low-cost housing programs (certainly an important element of urbanism) tell about RFC's one venture and cite James Ford's *Slums and Housing* for the statement that PWA built only 50 projects. There is no mention of the United States Housing Authority. Again, in a discussion of the "reality of metropolitan regions" rather irrelevant mention is made of Federal Reserve districts, and "the 20 other administrative divisions of the Unites States" assembled in maps in Odum's *Southern Regions*. Apart from their failure to distinguish metropolitan regions from federal administrative districts, the authors do not seem to be aware of the NRC's *Regional Factors*, which presents not 20 but 108 such maps. Practically all the footnote references, like those cited, are to chapters in books such as those of Gist and Halbert, Park, McKenzie, Davie, Carpenter. The student is given no sense of the kind of documents from which he can hope to gather fresh, original material by this constant cross reference to other sociological texts. The authors' preoccupation with such texts may explain the derivative character of many of their statements.

I respect the authors' honesty and integrity in their frequent frank warning to the student that their statements are hypotheses, for the proof of which insufficient data exist; and that the coexistence of factors (like bad housing and crime) does not necessarily prove causation. They are also sometimes ready to admit that the problem they present is not really urban, that it affects country people as well (governmental corruption, p. 218; use of leisure time, p. 159).

The authors point out that historians and political scientists have long studied cities (p. 15); they state the contributions which geographer and sociologist have to add. But where is the economist in this galaxy? Can we hope to have an integrated interpretation of urbanism without him? This book clearly suggests that we cannot.

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Land Resources

Lower, A. R. M. NORTH AMERICAN ASSAULT ON THE CANADIAN FOREST, with studies of the Forest Industries of British Columbia, by W. A. Carrothers, and of the Forest Industries of the Maritime Provinces, by S. A. Saunders. *Toronto: Ryerson Press; New Haven: Yale University Press, 1938. pp. xxvii, 377. $3.75.*

This is one of a series of studies of the relations between Canada and the United States, prepared under the direction of the Carnegie Endowment for International Peace.

As its title indicates, this volume deals with the lumber trade, past and present, between Canada and the United States, and the effects of this trade upon Canadian forests and the Canadian people. In his preface the author, after drawing attention to the economic unity of Canada and the United States, states that the object of this publication is "the promotion of sympathetic cooperation in attacking our common North American problems and of understanding our common environment."

The forest has been and still is one of Canada's most important resources. The greater part of it still is in public ownership. Lumber and other forest products are bulky and heavy. Hence cheap transportation

must be available if these products are to be moved more than a few miles from supply to demand areas.

The first three chapters of this volume are devoted to short descriptions of the "different types of country comprising the continent," the transportation available from time to time between the lumber-producing and -consuming areas, and of the eastern North American forests, emphasizing the importance of white pine in these forests. For about 300 years the white pine provided the lumber preferred above all other kinds in the lumber-consuming areas of North America. Then come two chapters in which the procedures followed in cutting the timber, getting the logs to the mills, and milling the logs are described.

Chapters VI to XV inclusive contain a chronological record of the development of the lumber trade between Canada and the United States. Here attention is concentrated upon Ontario and that portion of Quebec lying within the Ottawa Valley. This is the portion of eastern Canada from which the greater part of the lumber exports to the United States have come. Formerly this area was well covered with a fine stand of large old-growth white pine. The completion of the Erie Canal (1825) and later the extensive construction of railroads made this area accessible to the New York and the Boston markets. The industrialization and urbanization of the northeastern United States, together with the rapid settlement and development of the north central states (directly accessible through the Great Lakes) provided, particularly after 1850, a market which required more lumber than equally accessible supply areas located within the United States could furnish. This situation quickly "forced into existence a great extractive industry in Canada, based upon convenient supplies."

This volume shows clearly the international character of the lumber business in North America. It shows that the demand centers, through their demands for lumber, really brought about forest utilization and destruction in the supply areas—a point overlooked by most writers on forest conservation. It indicates that tariffs and embargoes have had little real effect upon the volume of trade in timber products between Canada and the United States, but have had considerable effect upon the location of the points at which the manufacturing operations were carried on. It shows that the timber exports from eastern Canada to Great Britain and the United States were roughly supplementary during the middle 1800's, but that, as time passed, the exports to Great Britain became less and less important and those to the United States more and more important.

The last 150 pages of the volume cover the forest industries of British Columbia (by W. A. Carrothers) and of the Maritime Provinces (by S. A. Saunders). The statistical coverage of the British Columbian forest industries is very complete. British Columbia has now become the major Canadian lumber-producing area.

This volume contains material of much interest to the forester, the person interested in the lumber trade, and the one interested in international relations. Mr. Lower's part includes an extensive bibliography, Mr. Carrothers' and Mr. Saunders' parts, much shorter ones.

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Public Utilities

Behling, Burton N. Competition and Monopoly in Public Utility Industries. *Urbana: University of Illinois Press, 1938. pp. 187, $2 (paper), $2.50 (cloth).*

It is refreshing to find a book not devoted primarily to some phase of public utility valuation, ownership, or management. This is a critical appraisal of the forces of competition and monopoly as they affect public utility rates. The analysis is in general terms and finds regulatory agencies ineffective and wanting in many respects. As an analysis in economic terms, it is a capable study, despite some inconsistent statements and faulty generalizations. Regrettably, therefore, it leaves an impression of a negative, rather than a constructive, quality.

All the major alternative policies of controlling public utility rates are surveyed and found defective in some respect. Direct competition is wasteful, indirect competition of alternatives or substitutes uncertain and ineffectual, yardstick competition by public plants debatable, and commission regulation "ineffective," "vacillating," and "de-

generate." Small and necessitous users are overcharged, good users tend to be undercharged, and power users are charged competitive or preferential rates.

What then should be done? Give greater weight to competitive factors or value-of-service principles? But "the value-of-service concept has been used as a thinly veiled monopolistic device" (p. 159), and competition of substitutes and alternatives is inadequate, illusory, and a cloak for discrimination (pp. 168, 171–3). Differential cost analyses? "It cannot be emphasized too strongly, however, that a thorough analysis of costs is indispensable to equitable rate-making" (p. 163). Although "strict devotion to past costs and capitalized expectancies in rate-formation is likely to result in a standpat protective rate policy" (p. 157), "unless regulation, armed with the power and the inclination to study costs, can be vitalized, rate making will continue in the paths which the profit motive of the public utilities decrees" (p. 175).

In the end, apparently, present regulatory agencies should continue but they should pay more attention to costs and in permitting differential or class rates should observe the following principles:

> "First, such rate concessions should be made only when added business improves the utilization factors, thereby resulting in lower unit costs. Second, preferential rates should be offered only when that is necessary to get the business. Third, no business ever should be accepted at less than long-time increment cost. Fourth, the consumers who pay the higher rates should benefit from the lower average unit cost of production which results from the better utilization attendant upon the addition of the business which pays lower rates. Fifth, uneconomical competition between substitute goods and services, which arises when each of the respective sellers assumes that the whole market belongs to him must be prevented. In other words, rate differentiation should not be a device to enhance monopoly profit by discrimination, but should reduce rates all along the line and promote maximum service with economical use of resources." (pp. 148–9).

These are desirable and well-worn principles. Difficulties, which Mr. Behling underestimates, attend their application. For example, where is the seer to predict "long-time increment cost" in a future characterized by uncertain and fluctuating costs, prices, and technological advances?

Perhaps the reviewer was looking for constructive suggestions foreign to the author's intent. Laying aside this disappointment, the monograph is a suggestive general synthesis of recent tendencies in public utility industries and their rate-making practices. The approach promises interesting results as more data become available.

Some of the author's generalizations on particulars are open to question. For example, municipal lighting rates are criticized as woefully high and as evidence of monopoly pricing. Apparently this judgment is based on lack of municipal bargaining power, political influence, the off-peak character of a major part of the street-lighting load, and comparative use, investment, and average rates relative to residential, commercial, or industrial service. No mention is made of the complete lack of diversity, at the time of the usual system peak, of the special services, such as lamp renewals, frequently performed, or of the considerable amount of investment in special equipment scattered over the distribution area. A single 100-candlepower lamp burning 4,000 hours a year requires approximately 256 kwhs., which use is less, not "greater," than the average annual use of a residential customer (845 kwhs. in 1938) (p. 111). Undoubtedly many street-lighting rates are inordinately high and politically influenced, but it appears hazardous to make such a forthright sweeping generalization without checking cost analyses which in other connections the author encourages.

Similarly, one may question the practicability of a wholesale application of rates based on estimated costs on the assumption of a fully developed market unless someone underwrites the capital costs of furnishing the necessary plant and facilities during the period of development. Where capital costs can for a time be neglected, this is a desirable experiment and serves to loosen the deadening hand of the vicious circle in rate-making (p. 154).

Finally, one may wonder why detailed cost analyses by classes of service with all the necessary assumptions and estimates deserve such complete faith and reliance, when allocations of joint costs are at least questionable (p. 92) and the fanciful estimates of cost of reproduction are deplored. This has long puzzled the reviewer. Those who most vehemently criticize (and rightly) reproduction-cost estimates frequently insist with equal ardor that rates should be tied closely, if not slavishly, to an elaborate

analysis of the costs of each class of service. Yet necessarily such cost analyses require many assumptions and estimates concerning which the divergence of opinion is fully as wide as in the case of estimates of the cost of property. The reasonable view, in my opinion, is to treat cost analyses as a general guide, not a precision instrument, in establishing a reasonable rate-structure if that rate-structure is to have even a modicum of public acceptance.

Despite criticisms of some details, the general tenor of the author's indictment of regulation is in the right direction. It is, I fear, a perpetual indictment. The multiple interests affected are too pervasive for regulation ever to achieve general public satisfaction. Yet some notable improvements have been made in recent years, not recorded by the author. When all is said and done, the remedies for the indictment are not panaceas but painstaking, day-to-day, intelligent, and aggressive effort on the part of regulatory agencies, when given a real, long-continued opportunity.

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Havlik, Hubert F. Service Charges in Gas and Electric Rates. *New York: Columbia University Press, 1938. pp. 234. $2.75.* (Studies in History, Economics and Public Law No. 435.)

This book fills a long-felt demand for a comprehensive study of the factors entering into the development of service, minimum, and demand charges for gas and electric utilities. A thorough range of references to the principles advanced by other writers on this controversial question has been presented, but there is no discrimination in favor of the concepts advocated by any one individual or group of individuals. Dr. Havlik has tied up these concepts with supporting reasoning for each, so that readers may benefit from an unprejudiced presentation of the exhaustive research of those who have devoted their time and energy for the use of the industry as a whole.

It is to be realized from this presentation that rate-structures in the past have been to a very large extent nothing more than certain charges which would produce a revenue without any attempt to determine the fairness or equitablenesss of the rates thus adopted. Attempts have been made to compute service or ready-to-serve charges on the basis of certain costs which could be directly attributed to serving the consumer. Apparently realizing that some of those closely associated with the development of rate-schedules have long desired to have at hand for ready reference the thoughts and conclusions of others similarly engaged, the writer has included much descriptive material and tabulations concerning customer costs used as a basis for computing service charges in various instances. This material, with the author's comments and conclusions, should be very helpful to students as well as to utility operating men in pointing out the many variables to be weighed before rates are adopted.

This study of service charges in gas and electric rates was made " . . . in the hope of answering a number of questions on the nature of service charges, as well as the consequences of their use in gas and electric rate schedules." The author is not concerned with problems of fair value and fair return, nor with questions of the level of rates, but devotes his attention only to the types of schedules used by electric and gas utilities. His treatment is complete, and in general the material is lucidly presented and well documented. A good bibliography is included.

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Dockeray, James C. Public Utility Taxation in Ohio. *Columbus: Ohio State University Press, 1938. pp. xiii, 200. $2.40.*

This statistical study of the taxation of public utilities in Ohio will be of interest mainly to two groups: (1) to those with a practical interest in the tax burden of public utilities subject to tax in Ohio, the State Tax Commission, the Legislature, public utility executives, and civic organizations concerned with the justice of the specific legislation involved; (2) to students interested in a statistical demonstration of the operations and administration of the present Ohio law. The work also has interest for its picture of an apparently successful state-coordinated system of industrial taxation which, while retaining a skeleton of local autonomy, is really founded upon an unusually generous grant of power to administrative officials. One of the

author's basic conclusions is that the system has been successful in achieving the antithetical ends of a high tax-revenue level and a low volume of litigation and complaint.

The chapters on valuation appear to the writer to be the most significant contribution of the study. The material presents a dry, factual story, drawn from original source material, of the valuation procedure of a tax commission having broad discretion. Woven into its matter-of-fact presentation is a picture of the impact of the developing ability-to-pay concepts upon a traditional general-property-tax framework. The Tax Commission determines taxable values by a variety of formulae which are always combinations of two basic factors: the value of the properties being taxed as determined by original cost or by appraisal, and capitalized earnings. Considerable variation can be accomplished in the final result by the weights given to these factors and the Commission apparently avails itself freely of the opportunity in order to avoid litigation; compromise becomes one of the most important, if unmeasurable, factors. The student of public finance therefore finds here an important delegation of the legislative function to administrative officials which, while common enough in England, has always been regarded with suspicion in the United States. If we accept the conclusion of the author that the Tax Commission has been successful in raising a large amount of revenue with a minimum of complaint, we must regard the situation in Ohio as an interesting case study in what is obviously a basic trend in American government. Though one is loath to criticize a painstaking study of original source material, the writer regretted the failure to explore fully the personal aspects of a practical, off-the-record administration of a tax law by compromise instead of "according to the regulations." It should be added that the author concluded that the actual valuations established were usually quite close to value as established by appraisal.

In the discussion of apportionment, after pointing out that "telephone, electric light and natural gas" companies "operate over wide areas under one management or with centralized control, while the ownership of the property is vested in separate corporations set up to conform quite closely with state lines," the author concentrates on the problem of apportioning railroad values. The Ohio method varies with the kinds of property, the apportionment sometimes being made on a basis of capital employed (measured by main-line track mileage) and at other times on a basis of need (measured by daily average attendance at the public schools). To a limited extent the state collects the revenues, directly apportioning them among the subordinate units.

In addition to a property tax, Ohio subjects its public utilities to an excise tax (for the privilege of doing business) in the form of a percentage of gross receipts. An interesting feature of this law is its attempt to avoid the interstate commerce problem by subjecting to tax only intrastate receipts but at a rate adequate to compensate for failure to tax the state's portion of interstate commerce. Various types of utilities are subject to various rates: companies with a smaller proportion of intrastate business pay higher rates than companies with a larger proportion of intrastate business. This method of taxation was held constitutional in the Ohio Tax Cases, 232 U.S. 577 (1914).

The chapter on burden analysis is concerned with the attempt to select a proper index of public utility prosperity and to relate to it, as a percentage, the dollar tax burden. The applicable accounting concepts of gross and net revenues are discussed at some length and their frailties laid bare. Ratios of tax burden, computed on the basis of "gross revenues," "net operating income," and "net income" (as defined by the author), are worked out for the various classes of utilities in detail and are finally brought together in the following table (p. 176):

SUM OF BURDEN RATIOS AND BURDEN INDEX FOR SELECTED CLASSES OF UTILITIES

Classes of Utilities	Sum of Three Burden Ratios	Index
Street, suburban and interurban railroads	309.36%	3.709
Waterworks	126.70	1.519
Railroad	121.01	1.451
Natural gas	112.80	1.353
Electric light	92.59	1.110
Telephone	83.40	1.000

The enormous variation in these ratios is, of course, attributable to variations in ability to earn, some being "depressed," declining businesses, others being in the full vigor of growth, and to variations in amount of

operating property required. The author summarizes as follows:

"The study shows that there is little positive relationship between size and burden, but to the extent that there is any relationship between size and burden, the larger companies bear the heavier burden. The various classes of utilities bore considerably different burdens during the years 1930–1934, but as a whole the differences are probably due to inherent features of the different utilities. This leaves the final conclusion that, as a whole, the public utility tax system is equitable as between classes and sizes of utilities."

Faced with the enormous variation revealed by the statistical table shown above, the reader cannot but be perplexed by the ease with which the Ohio system of public utility taxation is tried and found equitable on every count.

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Public Finance

Ford, Robert S. REALTY TAX DELINQUENCY IN MICHIGAN. *Ann Arbor: University of Michigan, 1937. pp. 125.*

This study offers a concise survey of the past and present status of the property tax collection machinery in Michigan and contains much statistical data concerning the collection of real property taxes in Michigan for the years 1934 and before. Part I, which is concerned with the property tax procedure prior to 1933 and the modifications in procedure during the years 1933–6, and Chapter IX of Part IV, which describes the procedural changes enacted by the legislature of 1937, very clearly summarize within the compass of a relatively few pages all the salient aspects of the Michigan statutes which affect the problem of real property taxation. This summary of the legislation affecting tax collections is not critical or analytical, rather it is purely informative, its purpose ostensibly being to afford the reader a background with which to approach the statistical information contained in Part II.

The statistical data have been gathered from the records of the auditor-general and employ the Michigan counties as statistical units. Hence the data are primarily geographical in nature. The counties are divided into five classes, for comparative purposes: forest, mineral, farm, farm-urban, and urban. Within each county a division is made between urban and rural properties. Although these figures are valuable for comparing the positions of the various counties and the position of urban property and rural property in respect to uncollected realty taxes, they are quite limited in value for purposes of ascertaining the precise economic factors contributing to the differences between the various counties and types of usage. Consequently, Part IV of the study, which discusses the causes of tax delinquency and the proposals for minimizing it, does not draw on the statistical information of Part II for its conclusions and recommendations. Rather it reiterates the well-known proposals of the National Tax Association and the National Municipal League.

An underlying purpose of the study apparently is to evaluate the effects of the Moore-Holbeck Plan, which was purported to be "the salvation of home-owners who are delinquent in their tax payments." The study points out that, contrary to the prevailing impression, this extremely liberal plan, which waived all penalties and allowed payments over a period of 10 years to be made on all taxes delinquent for 1932 and prior years, has not proved itself successful, actually having affected only 23% of the delinquent parcels.

Aside from the evaluation of the Moore-Holbeck Act, the main value of the study is in its comparative picture of tax delinquency in Michigan by counties and in its clear and concise summary of the Michigan legislation concerning real property taxation.

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Miscellaneous

McDiarmid, John. GOVERNMENT CORPORATIONS AND FEDERAL FUNDS. *Chicago: University of Chicago Press, 1938. pp. xx, 244. $2.50.*

The public corporation is not a new institution, but its use has been rapidly increasing. The author of this book describes 28 federal public corporations now in existence. Of these, 3 exist only for liquidation purposes and 10 of the others are emergency agencies.

The author confines himself to the administrative aspects of this important institution and to the financial aspects of administration. An equally thorough study of the personnel and taxation problems of public corporations would be welcome.

The author examines the machinery for financial control of all federal public corporations beginning with the Bank of North America during the Colonial Era, and including the Panama Railroad Corporation, the Inland Waterways Corporation, the Reconstruction Finance Corporation, the Tennessee Valley Authority, and so on. The powers of the Panama Railroad Corporation are summarized as follows:

> "... permanent use of its capital, and hence, freedom from the necessity of annual appropriations; the power to borrow money; freedom from regular governmental procedures in matters of expenditure; availability of earnings for operating expenses, reserves, and improvements; and an annual audit by a private accounting firm."

Much of the book describes the running fight between the Comptroller General and these agencies, the former seeking to apply the usual governmental checks to insure proper use of government funds, the latter to preserve the freedom for prompt action and flexible decision deemed necessary for effective administration. In this contest, the author is generally whole-heartedly upon the side of the agencies.

As an example of how excessive control may impede efficiency, the author cites the case of one agency, which underpaid a railroad 57 cents. Before the sum could be paid, it was necessary to provide the Comptroller General with photostatic copies of the evidence, costing $1.27. Preparing the required records consumed time of the agency's personnel, costing $4.00, and an additional time of personnel in the General Accounting Office at Washington probably costing several additional dollars. Thus the "red-tape" in getting this trifle paid to the railroad cost several times the sum involved.

Among the author's conclusions and recommendations are the following: that the public corporations are a useful instrument for the performance of certain functions, their advantage lying in the speed and flexibility of decision they allow; that Congress should stipulate for these corporations their general and major purpose and confine its interference largely to such stipulation; that accounting control should consist of a thorough periodic public audit of the agencies' accounts; that such audit might well concern itself with the efficiency as well as the legal propriety of expenditures; that a special auditing service for public corporations might well be developed within the General Accounting Office; and that a general statute clarifying the status and rules of procedure of all public corporations might well be considered.

The author recognizes that the success of public corporations and the justification for their immunity from rigid and minute controls depends upon the appointment of nonpolitical, honest, and competent directors to head these corporations. It is largely the absence of such personnel which makes elaborate government checks and safeguards necessary elsewhere. It is hoped and believed that the appointments to these positions will justify substantial freedom and discretion.

The book is a welcome contribution on an important aspect of a very timely subject.

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